SONY

NETWORK CAMERA

SNC-RZ30N
SNC-RZ30P

SERVICE MANUAL

1st Edition

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Vorsicht!

Explosionsgefahr bei unsachgemäßem Austausch der Batterie.

Ersatz nur durch denselben oder einen vom Hersteller empfohlenen ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.
Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandøren.

ADVARSEL

Lithiumbatteri - Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VARNING

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en likvärdig typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt gällande föreskrifter.

VAROITUS

Paristo voi räjähtää jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin.
Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

For the customers in the Netherlands
Voor de klanten in Nederland

Dit apparaat bevat een V_2O_5-Li batterij voor memory back-up.

Raadpleeg uw leverancier indien de batterij toch vervangen moet worden.

Hoe u de batterijen moet verwijderen, leest u in de Hoe u de batterijen moet verwijderen, leest u in de tekst van deze handleiding.

Gooi de batterij niet weg maar lever deze in als klein chemisch afval (KCA).

Lever het apparaat aan het einde van de levensduur in voor recycling, de batterij zal dan op correcte wijze verwerkt worden.

Für Kunden in Deutschland

Entsorgungshinweis: Bitte werfen Sie nur entladene Batterien in die Sammelboxen beim Handel oder den Kommunen. Entladen sind Batterien in der Regel dann, wenn das Gerät abschaltet und signalisiert “Batterie leer” oder nach längerer Gebrauchsdauer der Batterien “nicht mehr einwandfrei funktioniert”. Um sicherzugehen, kleben Sie die Batteriepole z.B. mit einem Klebestreifen ab oder geben Sie die Batterien einzeln in einen Plastikbeutel.

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Manual Structure

Purpose of this manual

This manual is the Service Manual of the Network Camera SNC-RZ30N/RZ30P. This manual contains the service overview, adjustments of after replacement board, troubleshooting, circuit function, semiconductor pin assignments, spare parts, block diagrams, schematic diagrams and board layouts.

Related manuals

In addition to this Service Manual, the following manuals are provided.

- **Installation Manual (Supplied with SNC-RZ30N/RZ30P)**
  Part number: 3-620-375-11
  This manual describes the information on installing the SNC-RZ30N/RZ30P.

- **“User’s Guide” CD-ROM (Supplied with the SNC-RZ30N/RZ30P)**
  Part number: 3-620-525-01
  This manual describes the information required for the proper operation and application of this unit.

- **“Semiconductor Pin Assignments” CD-ROM (Available on request)**
  This “Semiconductor Pin Assignments” CD-ROM allows you to search for semiconductors used in B&P Company equipment.
  Semiconductors that cannot be searched for on this CD-ROM are listed in the service manual for the corresponding unit. The service manual contains a complete list of all semiconductors and their ID Nos., and thus should be used together with the CD-ROM.
  Part number: 9-968-546-XX

Trademarks

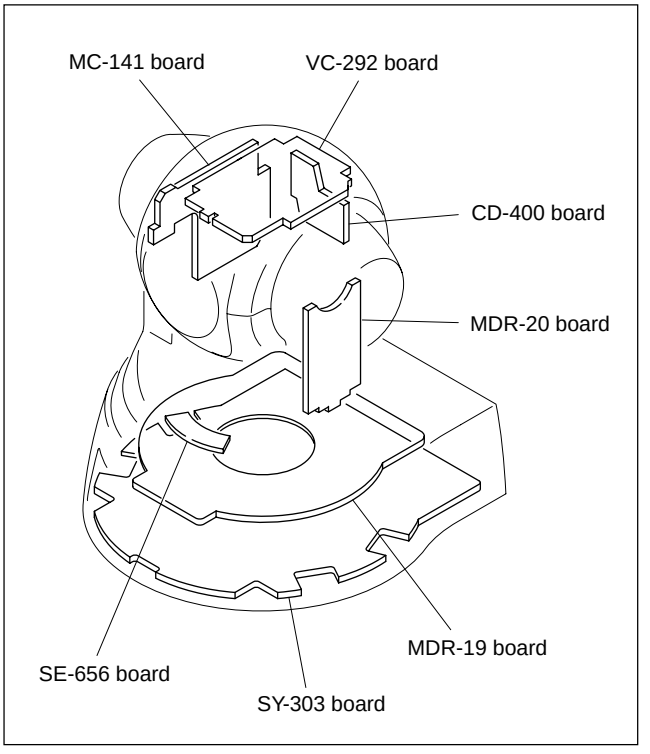
Trademarks and registered trademarks used in this manual are follows.

- Windows is a registered trademark of Microsoft Corporation.
- Memory Stick is a registered trademark of SONY Corporation.
- VISCA is a registered trademark of SONY Corporation.

Other system names, product names, and company names appearing in this manual are trademarks or registered trademarks of their respective holders.

Section 1
Service Overview

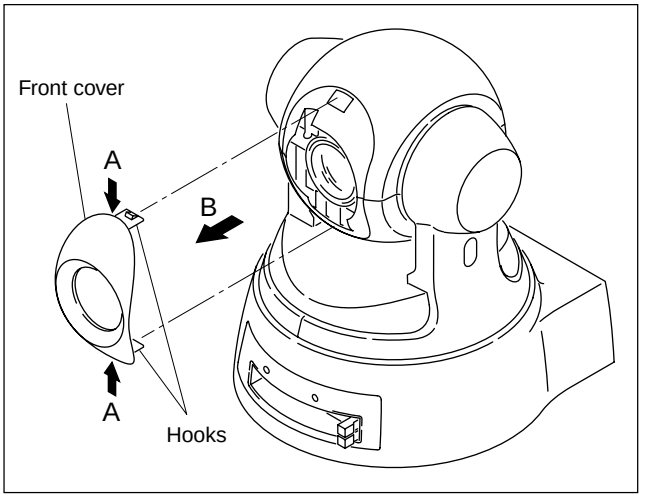
1-1. Board Location



1-2. Removal and Installation of Cabinet

1-2-1. Front Cover

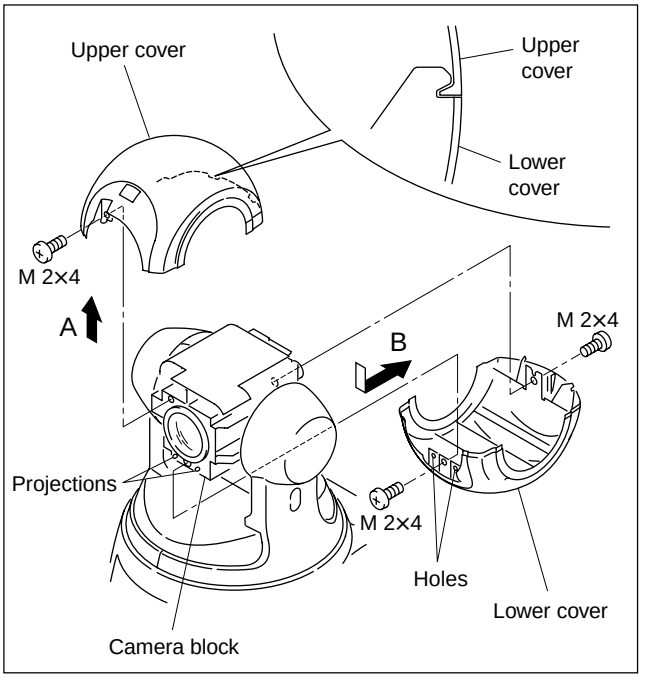
1. Remove the two hooks while pushing the front cover in the direction indicated by the arrow A, then remove the front cover in the direction indicated by the arrow B.



2. Attach the front cover in the reverse order of step 1.

1-2-2. Upper Cover and Lower Cover

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove one screw from the upper cover, then remove the upper cover in the direction indicated by the arrow A.
3. Remove the two screws from the lower cover, then remove the lower cover in the direction indicated by the arrow B.



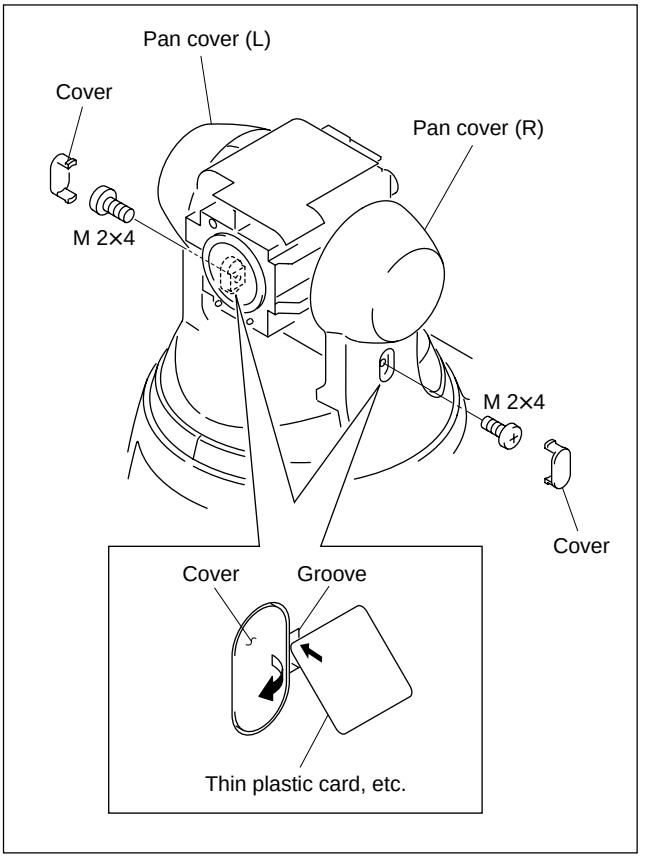
4. Attach the upper cover and lower cover in the reverse order of steps 1 to 3.

Note

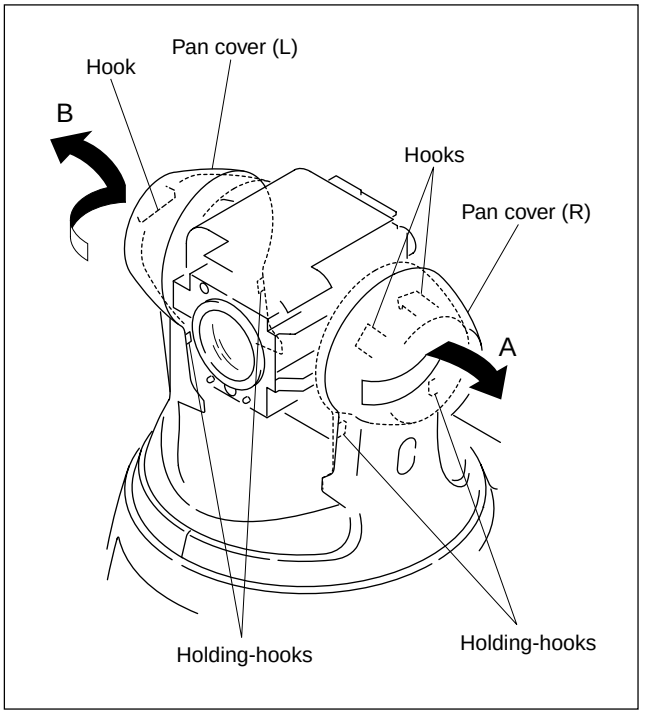
When attaching the lower cover, be sure to align the projections of the camera block with the holes of the lower cover.

1-2-3. Pan Cover (F) and Pan Cover (B)

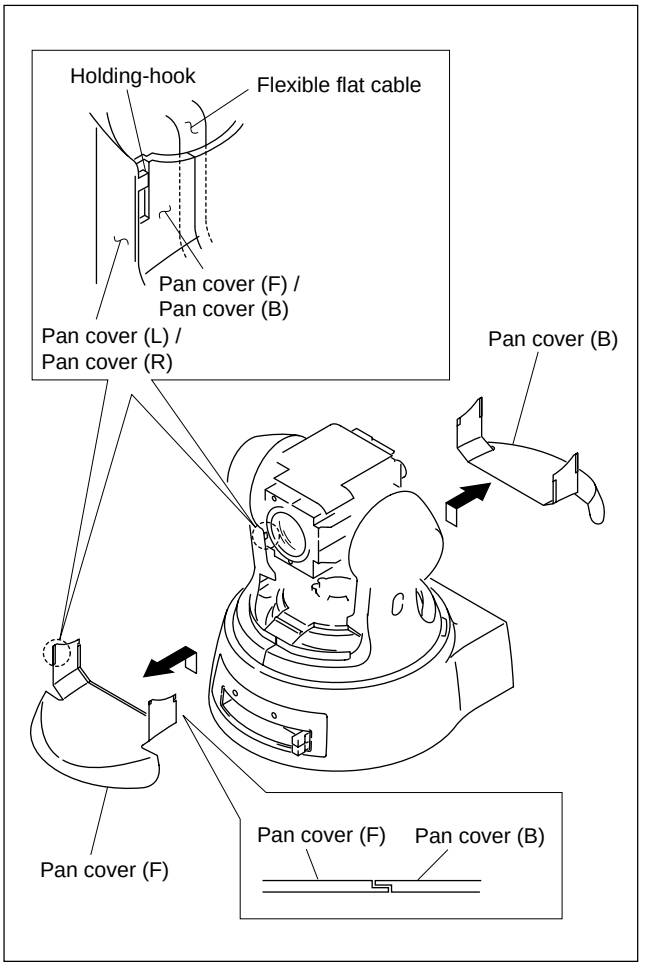
1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Insert a flexible film or the like (such as a thin plastic card) into each groove of the pan cover (L) and pan cover (R), then remove the two covers in the direction indicated by the arrow.
4. Remove the two screws from the pan cover (L) and pan cover (R).



5. Remove the two hooks and two holding-hooks while moving the upper portion of the pan cover (R) in the direction indicated by the arrow A.
6. Remove one hook and two holding-hooks while moving the upper portion of the pan cover (L) in the direction indicated by the arrow B.



7. Remove the pan cover (F) and pan cover (B) in the direction indicated by the arrow.



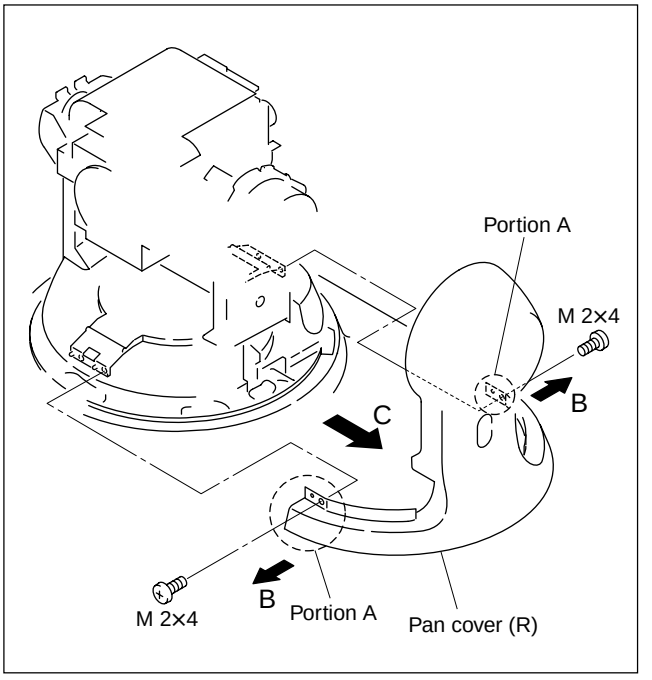
8. Attach the pan cover (F) and pan cover (B) in the reverse order of steps 1 to 7.

Notes

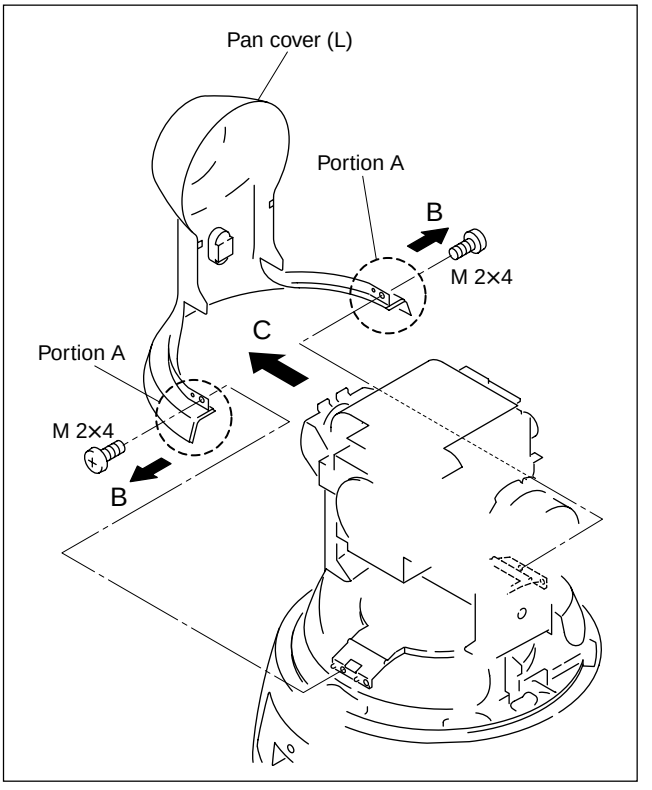
- Before attaching the pan cover (F) and pan cover (B), make sure that the four holding-hooks of the pan cover (L) and pan cover (R) are not broken, then attach them securely.
- When attaching the pan cover (F) and pan cover (B), be careful not to get the flexible flat cable caught in the covers.

1-2-4. Pan Cover (R) and Pan cover (L)

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the two screws, then expand the two portions A of the pan cover (R) in the direction indicated by the arrow B and remove it in the direction indicated by the arrow C.



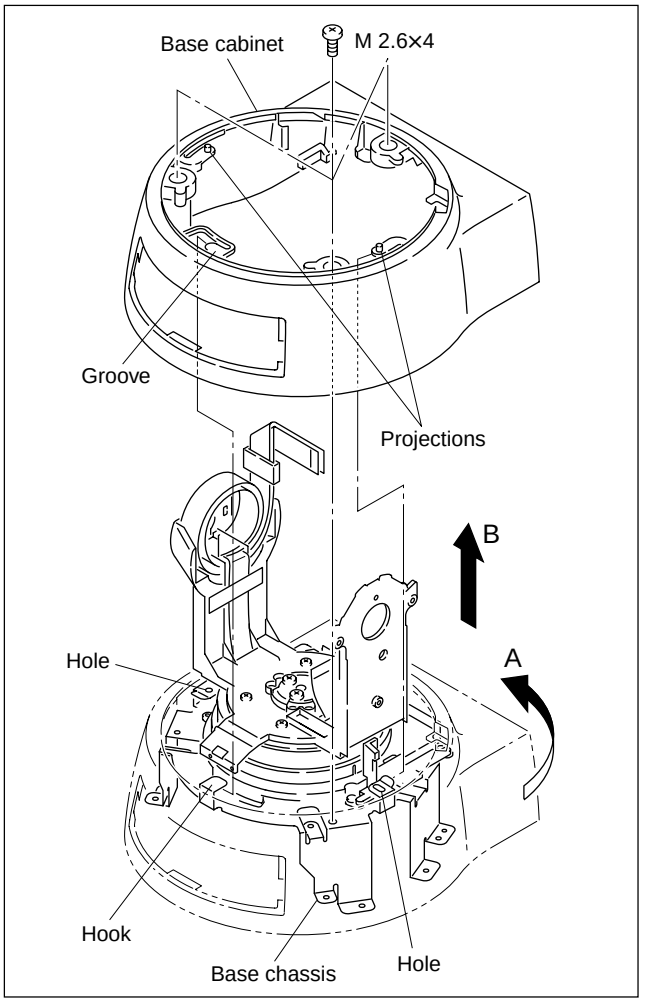
5. Remove the two screws, then expand the two portions A of the pan cover (L) in the direction indicated by the arrow B and remove it in the direction indicated by the arrow C.



6. Attach the pan cover (R) and pan cover (L) in the reverse order of steps 1 to 5.

1-2-5. Base Cabinet

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the pan cover (R) and pan cover (L). (Refer to Section 1-2-4)
5. Remove the camera block. (Refer to Section 1-3-1)
6. Remove the SY-303 board. (Refer to section 1-4-5)
7. Remove the three screws, then rotate the base cabinet in the direction indicated by the arrow A and remove the base cabinet in the direction indicated by the arrow B.



8. Attach the base cabinet in the reverse order of steps 1 to 7.

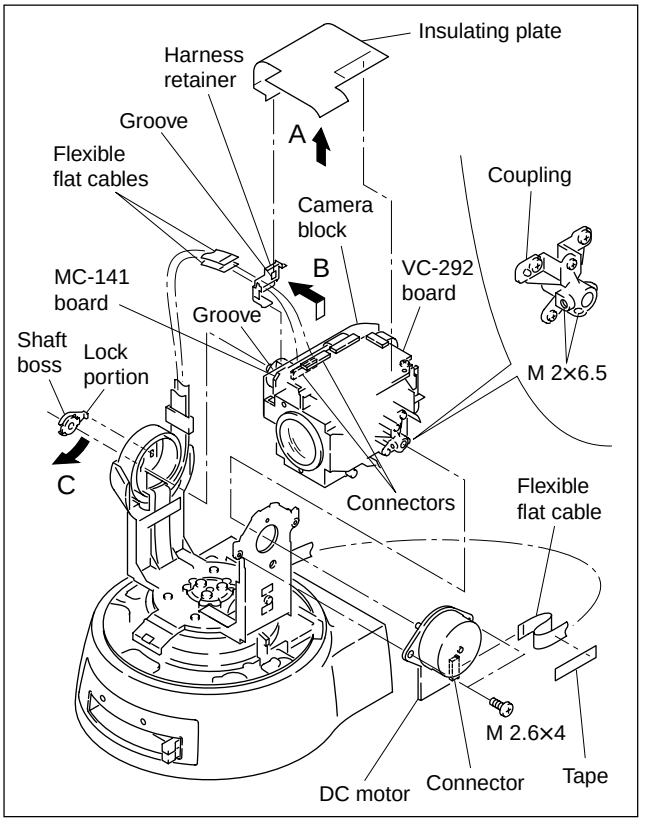
Note

When attaching the base cabinet, be sure to securely attach the two projections to the two holes of the base chassis and attach one groove to one hook of the base chassis.

1-3. Removal and Installation of Camera Block

1-3-1. Camera Block

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the pan cover (R) and pan cover (L). (Refer to Section 1-2-4)
5. Remove the insulating plate in the direction indicated by the arrow A.
6. Disconnect the two flexible flat cables from one connector on the MC-141 board and one connector on the VC-292 board, then remove the harness retainer in the direction indicated by the arrow B.
7. Loosen the two screws (M 2×6.5) in the coupling.
8. Remove the tape and disconnect one flexible flat cable from the connector on the DC motor.
9. Remove the two screws (M 2.6×4), then remove the DC motor.
10. Remove the lock portion of the shaft boss using a flat screwdriver tip, etc. and rotate it in the direction indicated by the arrow C.
11. Remove the shaft boss, then remove the camera block.



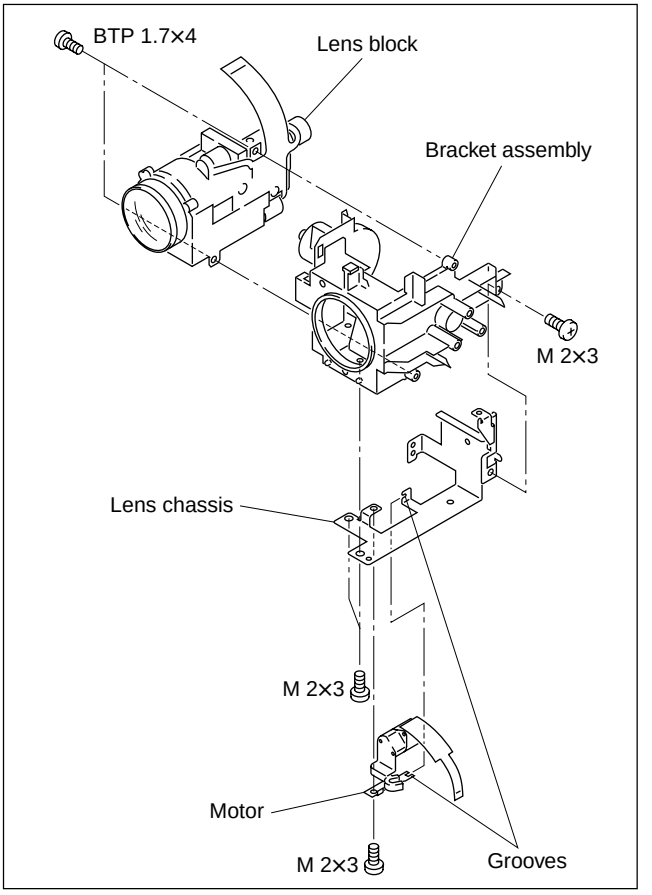
12. Attach the camera block in the reverse order of steps 1 to 11.

Note

When attaching the camera block to the DC motor shaft, tighten the two screws (M 2×6.5) in the coupling while pushing the camera block toward the DC motor. In case that the camera block is not securely attached, the pan cover (L) rubs against the upper cover and the lower cover, resulting in abnormal operation of the camera block.

1-3-2. Lens Block

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the pan cover (R) and pan cover (L). (Refer to Section 1-2-4)
5. Remove the camera block. (Refer to Section 1-3-1)
6. Remove the VC-292 board. (Refer to Section 1-4-2)
7. Remove the MC-141 board. (Refer to Section 1-4-3)
8. Remove the two screws (BTP 1.7×4), then remove the lens block from the bracket assembly.
9. Remove the three screws (M 2×3), then remove the lens chassis from the bracket assembly.
10. Remove one screw (M 2×3), then remove the motor from the lens chassis.



11. Attach the lens block in the reverse order of steps 1 to 10.

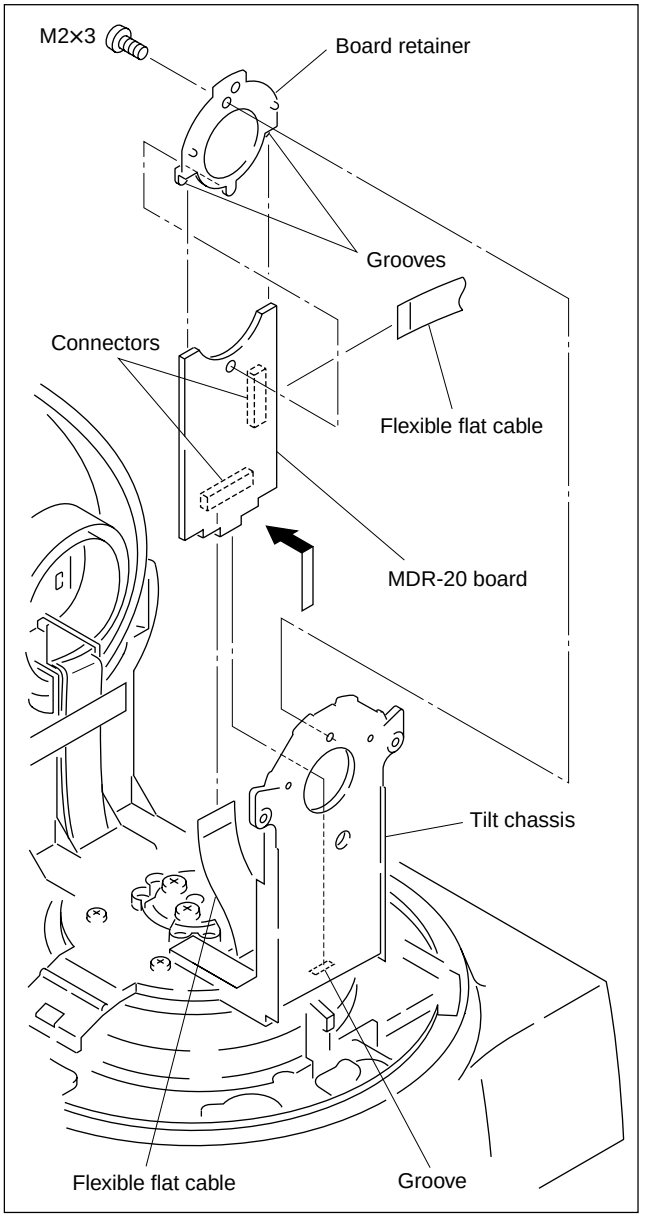
Note

When attaching the motor, be sure to align the groove of the motor with the groove of the lens chassis, then secure the motor with one screw (M 2×3).

1-4. Removal and Installation of Board

1-4-1. MDR-20 Board

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the pan cover (R) and pan cover (L). (Refer to Section 1-2-4)
5. Remove the camera block. (Refer to Section 1-3-1)
6. Remove one screw, then remove the board retainer and MDR-20 board in the direction indicated by the arrow.
7. Disconnect the two flexible flat cables from the two connectors on the MDR-20 board.



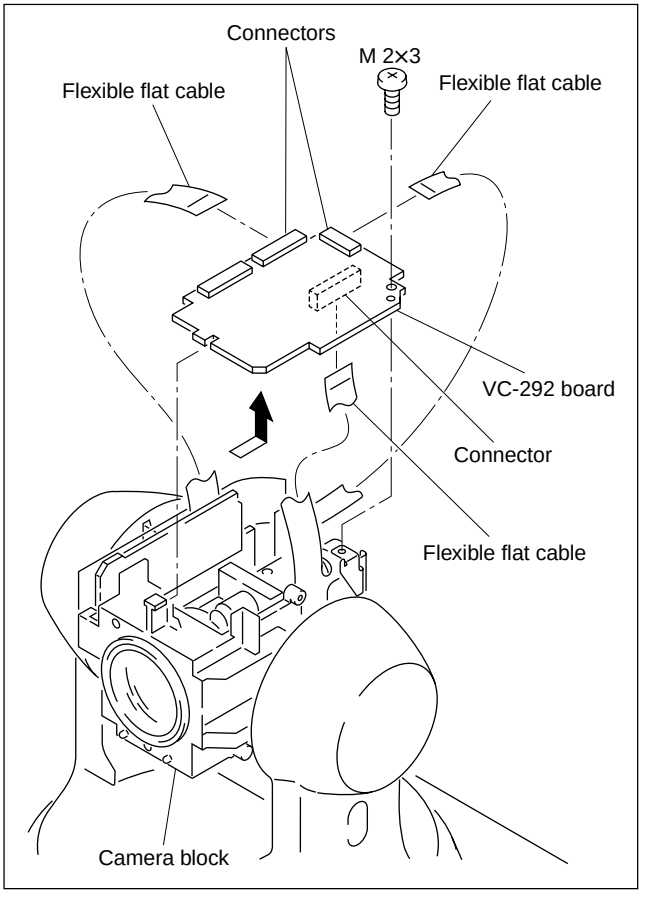
8. Install the MDR-20 board in the reverse order of steps 1 to 7.

Note

When attaching the MDR-20 board, be sure to securely install the MDR-20 board to the two grooves of the board retainer and one groove of the tilt chassis.

1-4-2. VC-292 Board

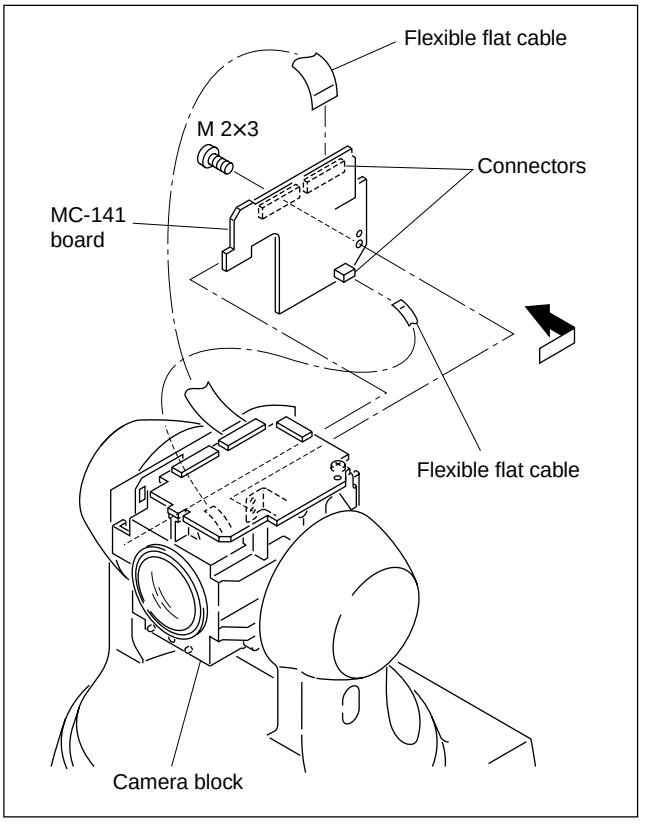
1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and the lower cover. (Refer to Section 1-2-2)
3. Remove the insulating plate. (Refer to Section 1-3-1)
4. Remove one screw, then remove the VC-292 board in the direction indicated by the arrow.
5. Disconnect the three flexible flat cables from the three connectors on the VC-292 board.



6. Install the VC-292 board in the reverse order of steps 1 to 5.

1-4-3. MC-141 Board

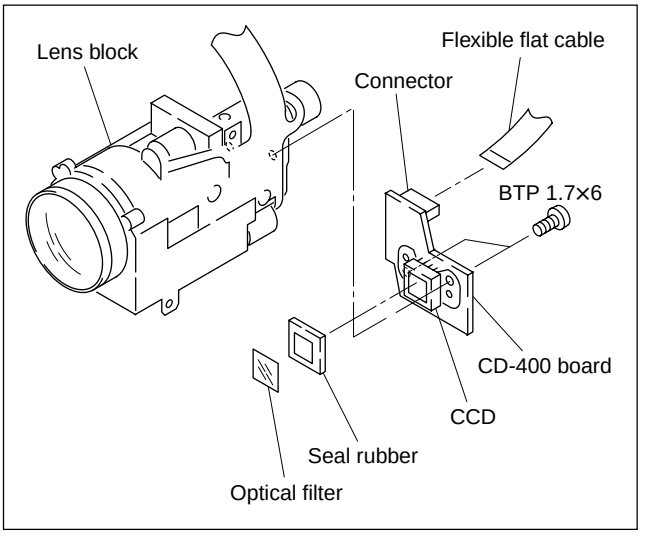
1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the insulating plate. (Refer to Section 1-3-1)
4. Remove one screw, then remove the MC-141 board in the direction indicated by the arrow.
5. Disconnect the two flexible flat cables from the two connectors on the MC-141 board.



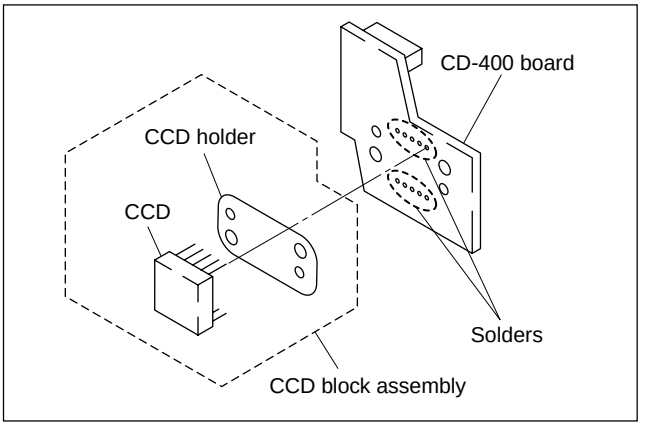
6. Install the MC-141 board in the reverse order of steps 1 to 5.

1-4-4. CD-400 Board

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the pan cover (R) and pan cover (L). (Refer to Section 1-2-4)
5. Remove the camera block. (Refer to Section 1-3-1)
6. Remove the lens block (Refer to Section 1-3-2)
7. Remove the two screws, then remove the CD-400 board.
8. Disconnect one flexible flat cable from one connector on the CD-400 board.
9. Remove the optical filter and seal rubber from the CCD on the CD-400 board.



10. Remove the solders from the CD-400 board, then remove the CCD and CCD holder.



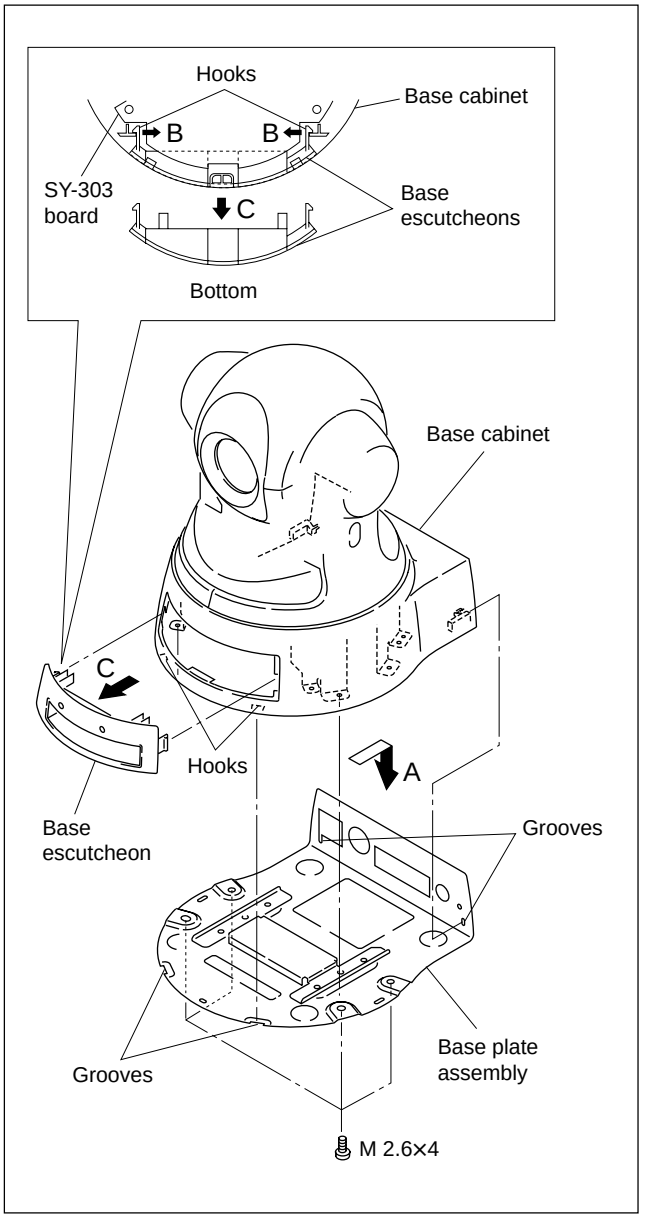
11. Install the CD-400 board in the reverse order of steps 1 to 10.

1-4-5. SY-303 Board

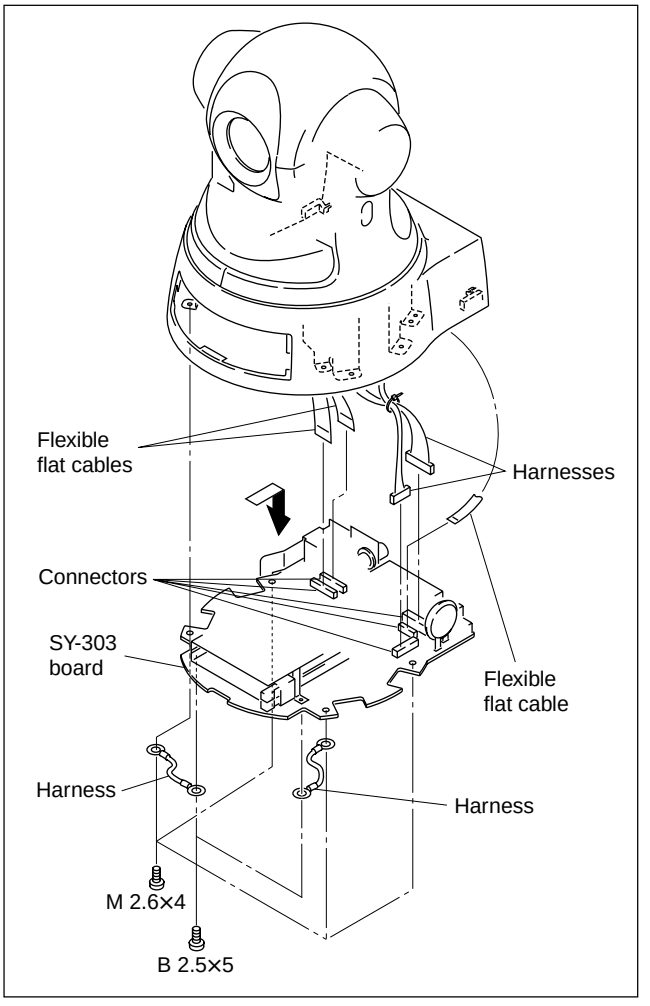
Note

When replacing the SY-303 board, remove the old MAC address label affixed to the bottom of the unit and replace with the new one. For details, refer to "2-5. Procedure for SY-303 Board Replacement".

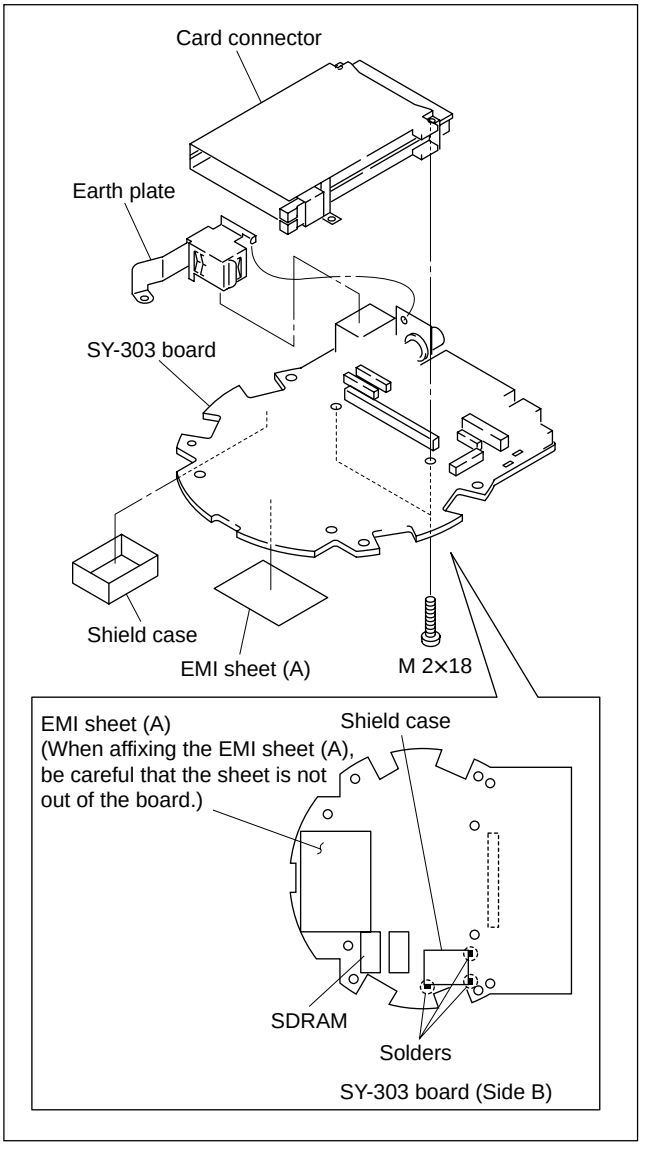
1. Remove the four screws, then remove the base plate assembly in the direction indicated by the arrow A.
2. Remove the two hooks in the direction indicated by the arrow B using a flat screwdriver tip from the bottom of the main unit, then remove the base escutcheon in the direction indicated by the arrow C.



3. Remove the four screws (M 2.6×4) and two screws (B 2.5×5), then remove the SY-303 board and disconnect the two harnesses in the direction indicated by the arrow.
4. Disconnect the three flexible flat cables and two harnesses from the five connectors on the SY-303 board.



5. Remove the two screws (M 2×18), then remove the card connector from the SY-303 board.
6. Remove the EMI sheet (A) from the SY-303 board.
7. Remove the three solders from the SY-303 board, then remove the shield case.
8. Remove the earth plate from the SY-303 board.



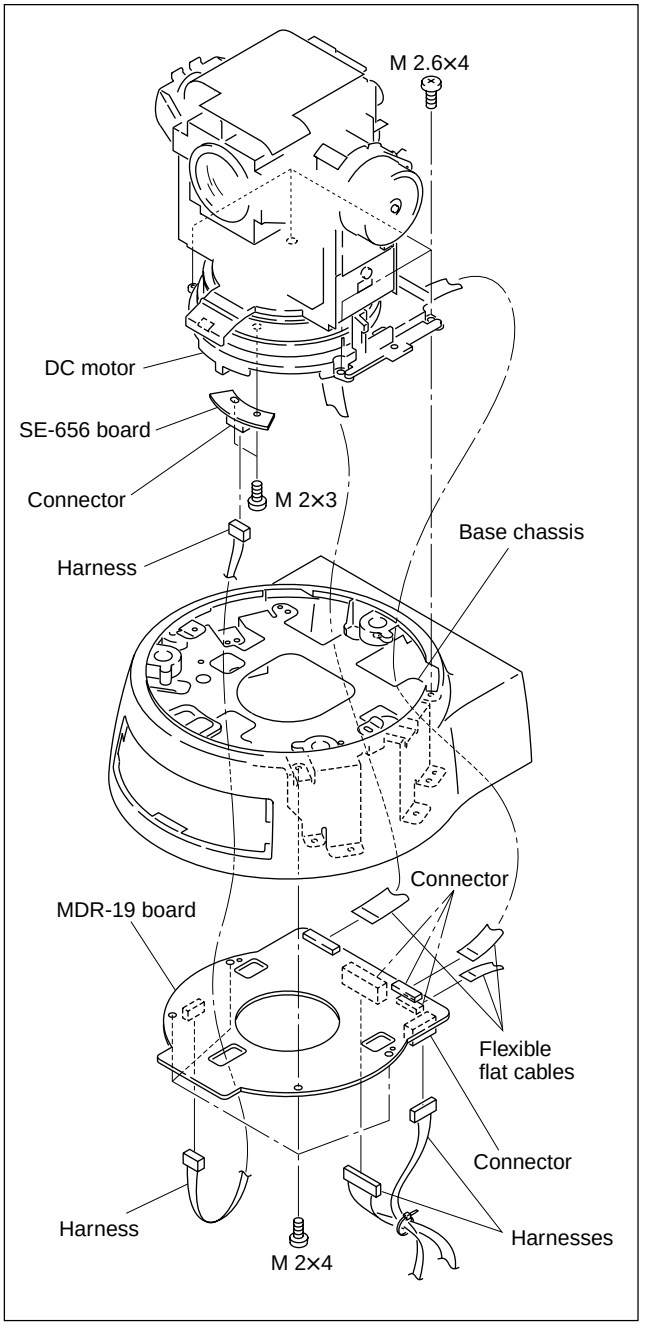
9. Install the SY-303 board in the reverse order of steps 1 to 8.

Note

- When installing the SY-303 board, be sure to securely attach the two projections and two hooks of the base cabinet to the four grooves of the base plate assembly.
- When installing the SY-303 board, be careful not to get the flexible flat cable or harness caught in the board.

1-4-6. MDR-19 Board and SE-656 Board

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the pan cover (R) and pan cover (L). (Refer to Section 1-2-4)
5. Remove the SY-303 board. (Refer to Section 1-4-5)
6. Remove the four screws (M 2×4), then remove the MDR-19 board.
7. Disconnect the three flexible flat cables and the three harnesses from the six connectors on the MDR-19 board.
8. Remove the four screws (M 2.6×4), then remove the DC motor.
9. Remove the two screws (M 2×3), then remove the SE-656 board.
10. Disconnect one harness from the connector on the SE-656 board.



11. Install the MDR-19 board and SE-656 board in the reverse order of steps 1 to 10.

Note

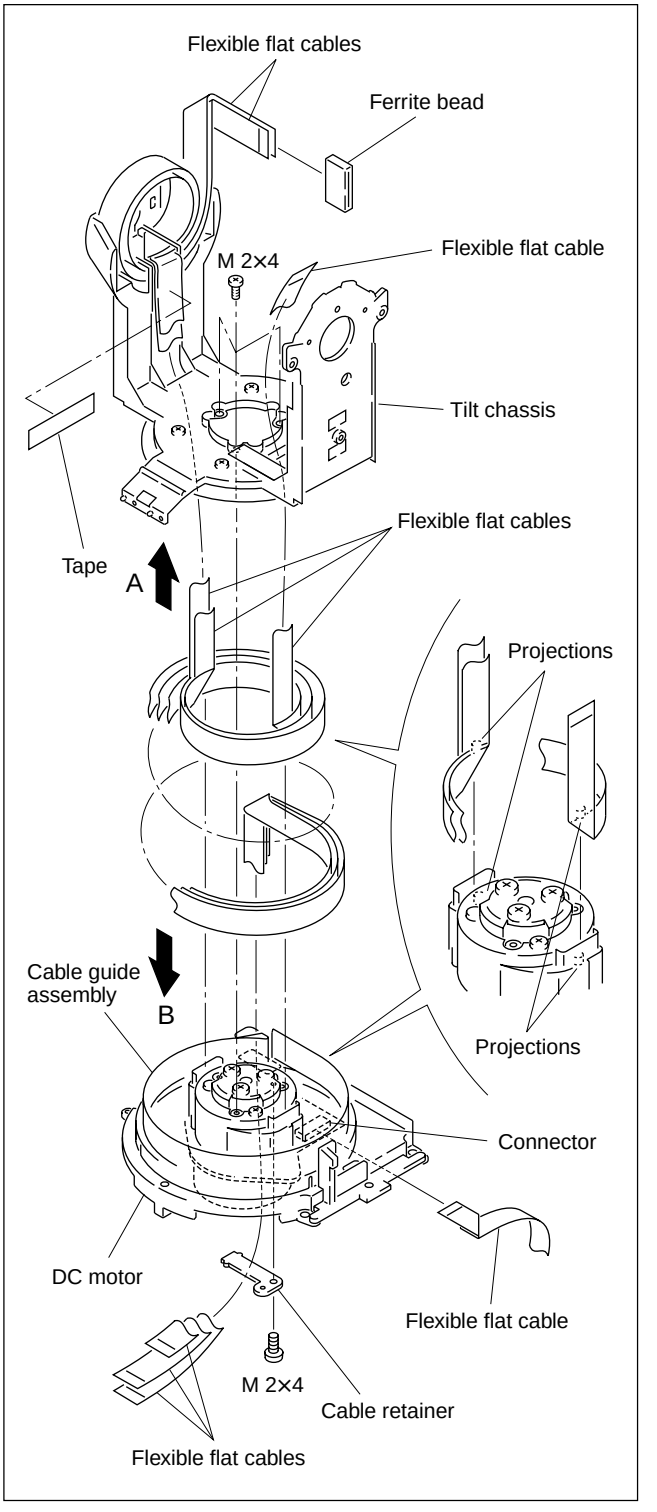
When installing the MDR-19 board and SE-656 board, be careful not to get the flexible flat cable or harness caught in the boards.

1-5. Flexible Flat Cable

Note

Be careful when removing the flexible flat cables because the bending portions of the flexible flat cables are hooked on the projections of the cable guide assembly.

1. Remove the front cover. (Refer to Section 1-2-1)
2. Remove the upper cover and lower cover. (Refer to Section 1-2-2)
3. Remove the pan cover (F) and pan cover (B). (Refer to Section 1-2-3)
4. Remove the pan cover (R) and pan cover (L). (Refer to Section 1-2-4)
5. Remove the camera block. (Refer to Section 1-3-1)
6. Remove the SY-303 board. (Refer to Section 1-4-5)
7. Remove the MDR-19 board and SE-656 board. (Refer to Section 1-4-6)
8. Remove the ferrite bead and tape.
9. Remove the three screws, then disconnect the three flexible flat cables while removing the tilt chassis in the direction indicated by the arrow A.
10. Disconnect one flexible flat cable from the connector on the DC motor.
11. Remove one screw from the cable retainer, then disconnect the three flexible flat cables while removing the DC motor in the direction indicated by the arrow B.



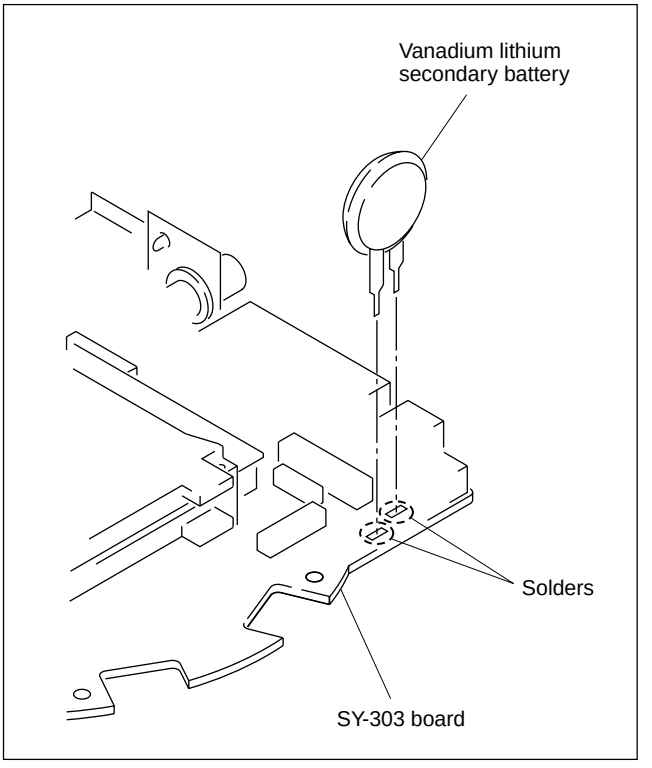
12. Attach the flexible flat cables in the reverse order of steps 1 to 11.

1-6. Replacement of Vanadium Lithium Battery

Use the following battery for replacement.

Ref. No.	Address	Name	Sony Part No.
BT001		Vanadium Lithium Battery (VL2330)	1-528-944-11

1. Remove the SY-303 board. (Refer to Section 1-4-5)
2. Remove the two solders from the SY-303 board, then remove the vanadium lithium secondary battery.



3. Attach the vanadium lithium secondary battery in the reverse order of steps 1 and 2.

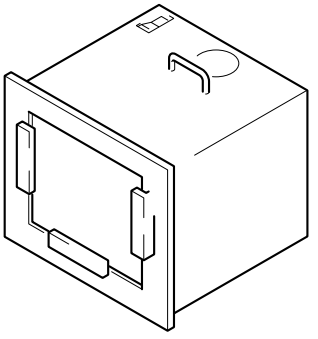
Section 2
Adjustments

2-1. Preparation

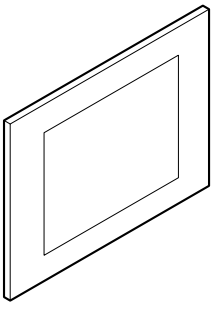
2-1-1. List of Service Tools

J-6029-140-B J-6431-850-A	Pattern Box PTB-500 Pattern Box PTB-700

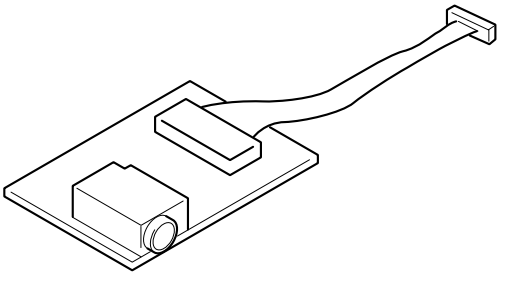
• **Light source for test chart**



J-6080-621-A	Clear Chart

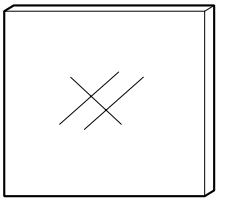


J-6431-930-A	Relay Tool for Adjustment Commander

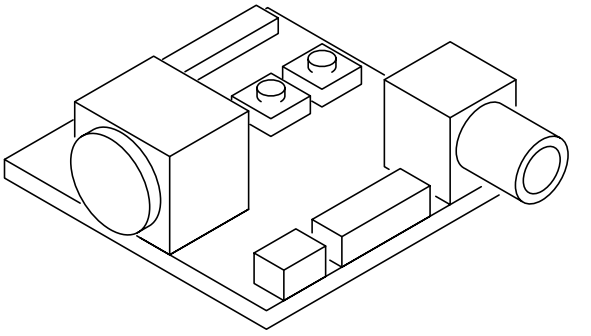


J-6080-808-A J-6080-818-A	ND Filter 1.0 ND Filter 0.3

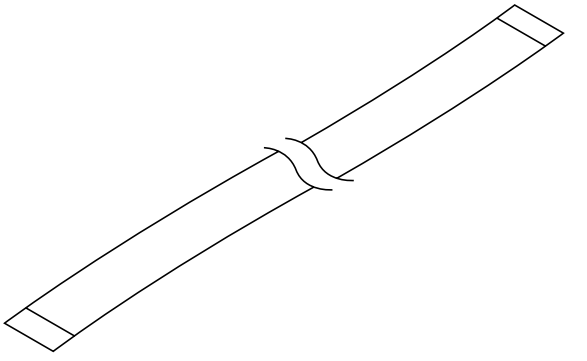
• **White Balance Check**



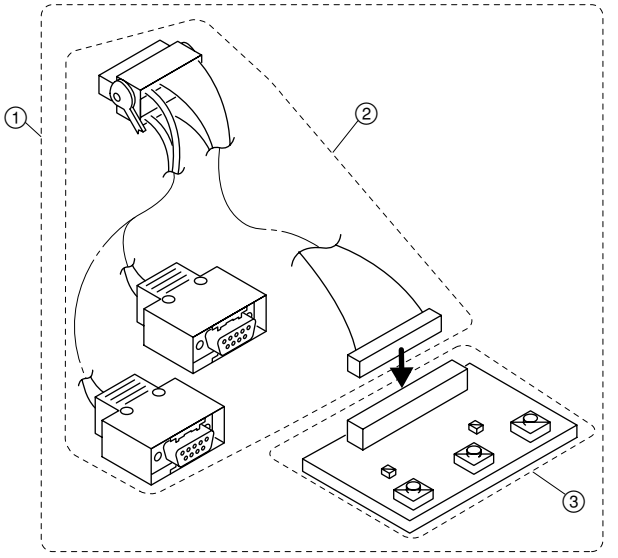
J-6432-430-A	FCB Interface Board



J-6432-890-A	FFC (21P)

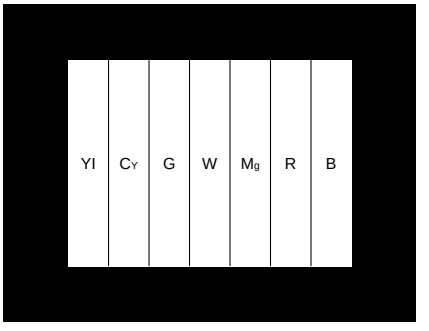


① J-6432-900-A	I/O port
② J-6432-910-A	Harness I/O port
③ J-6432-920-A	Alarm board



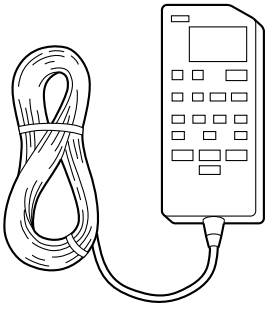
J-6020-250-A	Color Bar Chart

• For color reproduction adjustment



J-6082-053-B	Camera Adjustment Commander

• RM-95 partly converted

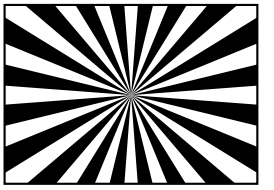


Note

If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

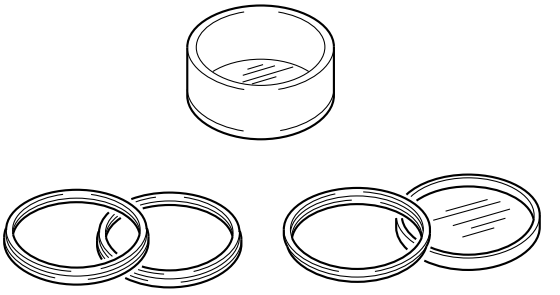
J-6080-875-A	Siemens star

• For checking the flange back



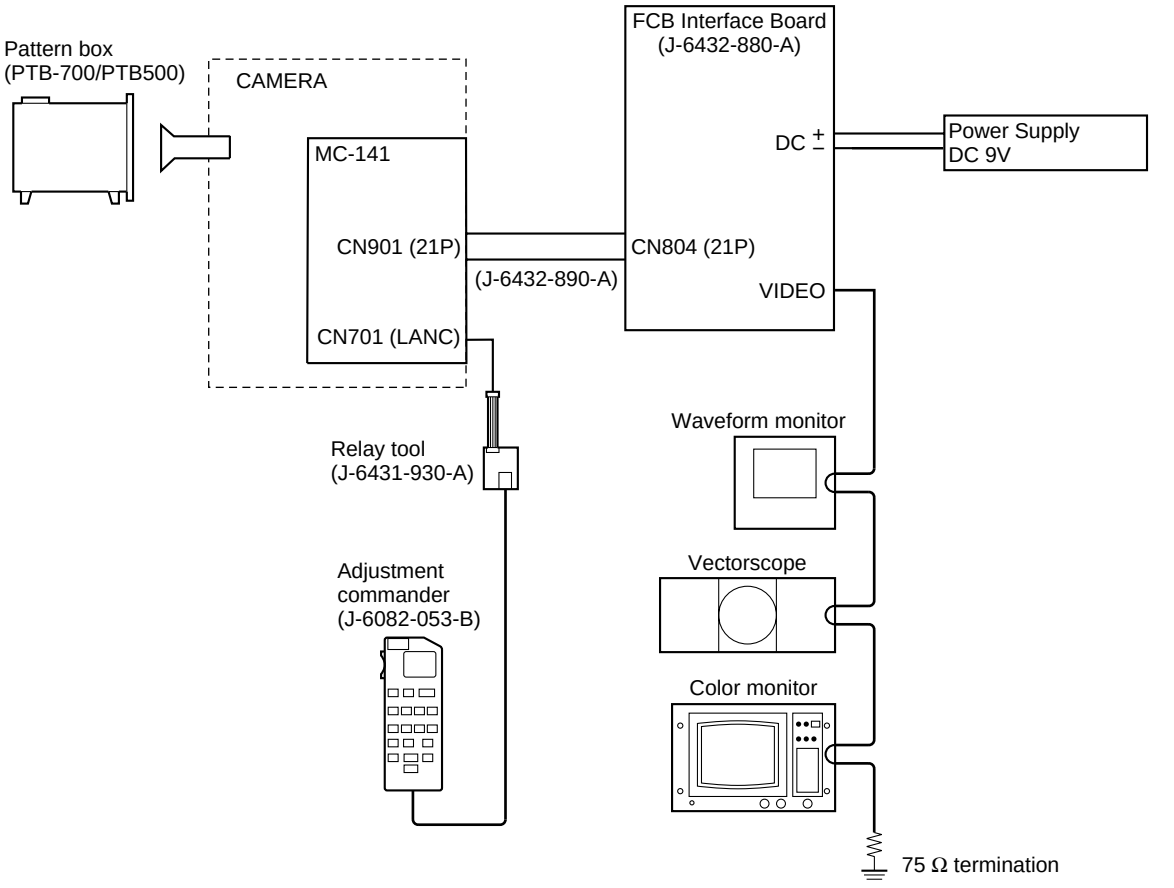
J-6080-058-A	Color Temperature Correction Filter C14

• Auto white balance adjustment
• White balance check



- Oscilloscope
- Frequency Counter
- Digital Voltmeter
- Vectorscope
- Waveform Monitor
- Color Monitor
- SNC-RZ30 Modify Tool software (J-6432-850-A)
- SNC-RZ30 Pan/Tilt Adjuster software (J-6432-860-A)
- RS-485/RS-232C converter (J-6432-870-A)

2-1-2. Connection for Adjustment



Note

Connect the FFC (21P) (J-6432-890-A) tool so that pin 1 of CN901 on the MC-141 board should be connected to pin 21 of CN804 on the FCB interface board.

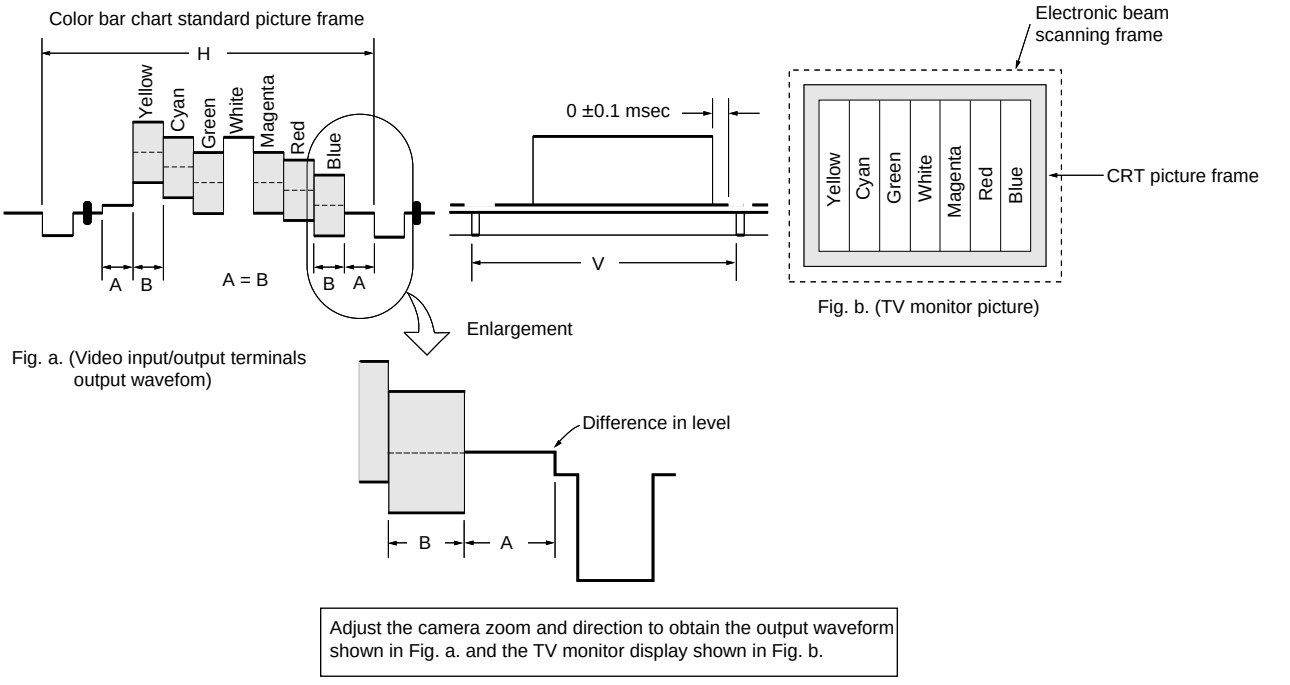
2-1-3. Precaution

1. Setting the Switch

ZeroLuxShot box at AE Control screen of FCB
Control ..... No check required

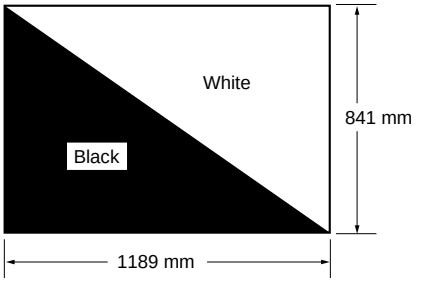
2. Adjusting Procedure

Adjust in the given order.



3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in above figure if adjustments are performed using the color bar chart.
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm × 841 mm) paper to a black one, and make the chart shown in right figure.



Note

Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

2-1-4. Adjusting Remote Commander

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit. The resultant data of this bi-directional communication is written in the non-volatile memory.

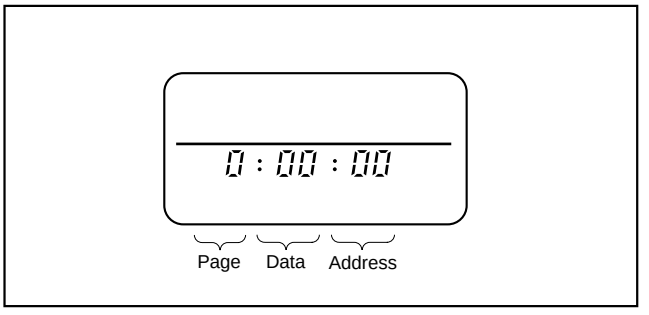
1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the LANC terminal (IF-088 board CN703) with Relay Tool for Adjustment Commander.

   Note

   The Relay Tool will have pin ① coincide with pin ① of the CN703.

2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).
   If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Figure.



3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH + button is pressed, and decreases when the EDIT SEARCH − button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (D, E, F, B, C page) in the non-volatile memory.
     (The new adjustment data will not be recorded in the non-volatile memory if this step is not performed.)

4) Select page: 0, address: 01, and set the data to 01, and enables Page D, E, F, B and C to be adjusted.
5) After completing all adjustments, set data: 00 to page: 0, address: 01 and turn off the main power supply once.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

2-1-5. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d) ②	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① → B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note

( ) indicate the adjusting remote commander display.

(Example) In the case that the DDS display and the adjusting remote commander display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

2-2. Initialization of D, E, F, B, C Page Data

1. Initializing the D, E, F, B, C Page Data

For camera micro processor: Page D, E, F
For VISCA micro processor: Page B, C

Notes

- If "Initializing the D, E, F, B, C Page Data" is performed, all data of the D page, E page, F page, B page and C page will be initialized. (It is impossible to initialize a single page.)
- If the D, E, F, B, C page data has been initialized, "Modification of D, E, F Page Data" and all adjustments need to be performed again.
- NTSC model : SNC-RZ30N
  PAL model : SNC-RZ30P

Initializing Method

- Whole data writing in a camera micro processor

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 00, and set data: 55 ((NTSC) or data: 51(PAL). And select page: 6, address: 01 and set data: 55 (NTSC) or data: 51 (PAL).
3) When page: 6, address: 02 and data: 01 is indicated on the screen, data writing is completed.

- Whole data writing in a VISCA micro processor

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 3, address: 00, and set data: 55 ((NTSC) or data: 51(PAL). And select page: 3, address: 01 and set data: 55 (NTSC) or data: 51 (PAL).
3) When page: 3, address: 02 and data: 01 is indicated on the screen, data writing is completed.

2. Modification of D, E, F, B, C Page Data

If the D, E, F, B, C page data has been initialized, change the data of the "*4" address shown in the following preset data tables by manual input.

Modifying Method

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination.
   When changing the data, copy the data built in the same model.

   Note

   If copy the data built in the different model, the camera may not operate.
3) When changing the data, press the PAUSE button of the adjusting remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the inital value.
5) After completing "Modification of D, E, F, B, C Page Data" select page: 0, address: 01, and set data: 00. Also perform all adjustments.

3. Preset data tables (NTSC)

Page: F

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	FF*2	00	00	11	49*3	37*3	00*3	00	C7	88	30	80	67	F0	3B	10
x1	FF*2	00	20	0B	46*3	0D*3	00	00	78	70	87	10	4D	48	00	35
x2	FF*2	00	80	02	87*3	13*3	0A	00	00	00	96	10	33	00	E8	50
x3	FF*2	00	15	22	46*3	08*3	00	00	00	28	13	00	5C	22	90	27
x4	FF*2	00	1B	00	00*3	6E*3	83	00	00	1D	00	00	5C	30	40	00
x5	FF*2	00	12	00	00*3	00*3	50	00	00	41	C3	00	5C	6C	40	07
x6	FF*2	00	02	00	03*4	19*3	77	00	00	90	D4	00	3C	88	0F	06
x7	FF*2	00	00	00	31	00*3	67*3	75	00	0A	FF	00	0F	FF*3	00	8F
x8	FF*2	00	44	4A*3	C8*4	19*3	60*3	30	00	10	0F	2B	10	F7*3	01	1C
x9	FF*2	00	40	60*3	2A	00*3	80	3C	00	50	15	80	19	13*3	78	F8
xA	FF*2	00	80	80*3	5D*4	00*3	00	40	40	57	06	5E	00	23*3	04	28
xB	FF*2	00	11	18	44*4	04*3	00	A6	2E	55	19	80	BC	00	4E	01
xC	FF*2	96	D0	74*3	22*4	00*3	00	68*3	85	00	80	68	D5	36	19	00
xD	FF*2	67	3C	6B*3	A0	00*3	00	80	50	30	80	26	C6	22*4	7A	F7
xE	FF*2	42	07	2E*3	2A	76*3	00	41	90	58	04	83	60	16	E0	00
xF	FF*2	80	00	6D*3	18	8C*3	00	33	A8	09	F7	A0	A5	E0	00	00

Page: E

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	3B	00	66	01	D7	2A	00	0A	00	00	33	F8	00	00	00
x1	67	43	00	84	20	77	F8	40	00	14	20	01	70	40	00	00
x2	02	AF	00	00	D2	AA	20	C8	77	10	40	00	E8	CA	80	00
x3	03	FF	00	00	26	65	FE	16	10	00	30	33	2C	55	00	45
x4	43	FF	00	B7	44	C2	40	00	6F	00	50	01	22	6C	00	00
x5	5D	FF	00	30	BA	53	0E	0F	70	00	30	08	65	B8	00	00
x6	5E	FF	80	0A	0F	90	51	00	00	00	4C	20	8C	A0	23	02
x7	00	FF	80	03	80	33	1E	00	00	00	2C	CC	06	10	40	03
x8	07	1F	46	08	00	FF	F8	FF	10	00	30	40	05	00	00	43
x9	00	FF	2F	42	E6	03	FA	00	20	01	00	1E	21	00	50	5D
xA	00	80	3F	30	C0	3D	30	00	12	49	28	00	06	00	00	5E
xB	00	96	2F	75*4	96	3D	EB	00	38	16	04	F4	11	00	00	00
xC	C3	47	FD*4	02	89	11	60	0A	DC	80	07	10	15	00	00	07
xD	2B	7D	00	5F	00	62	00	0A	F7	22	50	FC	71	00	00	00
xE	80	05	00	57	B0	FB	04	6B	B0	29	EB	04	80	00	00	07
xF	A7	02	00	1A	C8	F5	04	BC	11	02	00	FA	90	02	10	00

∗1: Address and data are completed writing by the whole data setting
∗2: Address that setting cannot change by reason on servicing
∗3: Address that changes the data using camera adjustment
∗4: Address that copies the data built in the different model

Page: D

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00*2	00	00	00	00	00	00	00	00	00	FE	01	0F	B0	04	20
x1	00*2	00	00	00	00	00	00	00	00	00	01	01	C0	75	32	20
x2	FF*3	00	00	00	00	00	00	00	00	00	00	20	05	80	0C	50
x3	FF*3	01	00	00	00	00	00	00	00	00	00	00	5A	60	20	50
x4	FF*2	1B	00	00	00	00	00	00	00	00	00	00	05	00	00	01
x5	FF*2	00	00	00	00	00	00	00	00	00	00	00	05	00	00	00
x6	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	10
x7	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x8	FF*2	11	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Page: C

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	07
x1	00	00	00	00	00	00	00	00	00	00	00	00	00	64	00	02
x2	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00	01
x3	00	00	00	00	00	00	00	00	00	00	00	00	00	11	0A	07
x4	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0B
x5	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
x6	00	00	00	00	00	00	00	00	00	00	00	00	00	00	36	02
x7	00	00	00	00	00	00	00	00	00	00	00	00	00	00	40	02
x8	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0B	80*3
x9	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1C	00
xA	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	AA
xB	00	00	00	00	00	00	00	00	00	00	00	00	00	00	05	01
xC	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
xD	00	00	00	00	00	00	00	00	00	00	00	00	00	0A	00	00
xE	00	00	00	00	00	00	00	00	00	00	00	00	00	32	01	00
xF	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

∗1: Address and data are completed writing by the whole data setting
∗2: Address that setting cannot change by reason on servicing
∗3: Address that changes the data using camera adjustment
∗4: Address that copies the data built in the different model

Page: B

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x1	00	06	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x2	00	11	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x3	01	01	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x4	10	11	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x5	00	00	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x6	80	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x7	01	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x8	00	07	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	05	05	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	05	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF	80	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00

∗1: Address and data are completed writing by the whole data setting
∗2: Address that setting cannot change by reason on servicing
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∗4: Address that copies the data built in the different model

4. Preset data tables (PAL)

Page: F

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	FF∗2	00	00	11	49∗3	37∗3	00	00	C7	88	30	80	67	F0	3B	10
x1	FF∗2	00	20	0B	46∗3	0D∗3	00	00	78	70	87	28	4D	48	FA∗4	35
x2	FF∗2	00	80	02	87∗3	13∗3	0A	00	00	00	96	10	33	00	E8	50
x3	FF∗2	00	15	51	46∗3	08∗3	00	00	00	28	13	00	5C	22	90	B8
x4	FF∗2	00	1B	00	00∗3	6E∗3	83	00	00	1D	00	00	5C	30	40	00
x5	FF∗2	00	12	00	00∗3	00∗3	50	00	00	41	C3	00	5C	6C	40	07
x6	FF∗2	00	02	00	03∗4	19∗3	77	00	00	88	D4	00	3C	88	0F	06
x7	FF∗2	00	00	00	31∗3	00∗3	67	7C	00	0A	FF	00	0F	FF∗3	00	8F
x8	FF∗2	00	44	4A∗3	C8∗4	19∗3	60	30	00	10	0F	2B	10	F7∗3	01	1C
x9	FF∗2	00	42	60∗3	2A∗3	00∗3	80	45	00	50	15	80	19	13∗3	78	F8
xA	FF∗2	00	80	80∗3	5D∗4	00∗3	00	40	40	57	06	5E	00	23∗3	04	22
xB	FF∗2	00	11	18	44∗4	04∗3	00	A6	2E	55	19	80	BC	00	49	01
xC	FF∗2	97	D0	74∗3	22∗4	00∗3	00	68∗3	85	00	80	68	D5	36	19	00
xD	FF∗2	67	3C	6B∗3	A0∗3	00∗3	00	80	50	30	80	26	C6	22	7A	F7
xE	FF∗2	42	07	2E∗3	2A∗3	76∗3	00	41	90	58	04	83	60	16	ED	00
xF	FF∗2	80	00	6D∗3	18∗3	8C∗3	00	33	A8	09	F7	A0	A5	E0	00	00

Page: E

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	3B	00	66	01	D7	2A	00	0A	00	00	33	F8	00	00	00
x1	67	43	00	84	20	77	F8	40	00	14	00	02	70	40	00	00
x2	02	AF	00	00	D2	AA	20	C8	77	10	40	00	E8	0A	80	00
x3	03	FF	00	00	26	65	FE	16	10	00	20	33	2C	55	00	45
x4	43	FF	00	B7	44	C2	40	00	6F	00	50	02	22	6C	00	00
x5	5D	FF	00	30	BA	53	0E	0F	70	00	30	08	75	A5	00	00
x6	5E	FF	80	0A	0F	90	51	00	00	00	4B	20	8C	A0	23	02
x7	00	FF	80	03	80	33	1E	00	00	00	3B	20	00	10	40	03
x8	07	1F	66	08	00	FF	F8	FF	10	00	2A	40	01	00	00	43
x9	00	FF	2F	42	E6	03	FA	00	20	01	00	1E	10	00	50	5D
xA	00	80	3F	30	C0	3D	30	00	12	49	25	00	03	00	00	5E
xB	00	96	2F	75*4	96	3D	EB	00	38	16	04	F4	10	00	00	00
xC	C3	47	FD*4	02	89	11	60	0A	DF	80	08	10	32	00	00	07
xD	2B	7D	00	5F	00	62	00	0A	F7	22	22	00	40	00	00	00
xE	80	05	00	57	B0	FB	04	6B	B0	29	EB	08	80	00	00	07
xF	A7	02	00	1A	C8	F5	04	BC	11	02	00	FA	90	02	10	00

Page: D

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	FF*2	00	00	00	00	00	00	00	00	00	FE	01	0F	B0	04	20
x1	FF*2	00	00	00	00	00	00	00	00	00	01	01	C0	75	32	20
x2	FF*3	00	00	00	00	00	00	00	00	00	00	20	05	C0	0C	50
x3	FF*3	00	00	00	00	00	00	00	00	00	00	00	5A	60	20	64
x4	FF*2	1B	00	00	00	00	00	00	00	00	00	00	05	00	00	01
x5	FF*2	00	00	00	00	00	00	00	00	00	00	00	05	00	00	00
x6	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	10
x7	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x8	FF*2	11	00	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF*2	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

∗1: Address and data are completed writing by the whole data setting
∗2: Address that setting cannot change by reason on servicing
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∗4: Address that copies the data built in the different model

Page: C

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	09
x1	00	00	00	00	00	00	00	00	00	00	00	00	00	64	00	02
x2	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00	03
x3	00	00	00	00	00	00	00	00	00	00	00	00	00	11	0A	07
x4	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	0B
x5	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
x6	00	00	00	00	00	00	00	00	00	00	00	00	00	00	36	02
x7	00	00	00	00	00	00	00	00	00	00	00	00	00	00	40	02
x8	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1A	80*3
x9	00	00	00	00	00	00	00	00	00	00	00	00	00	00	1C	00
xA	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	AA
xB	00	00	00	00	00	00	00	00	00	00	00	00	00	00	05	01
xC	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	00
xD	00	00	00	00	00	00	00	00	00	00	00	00	00	0A	00	00
xE	00	00	00	00	00	00	00	00	00	00	00	00	00	32	01	00
xF	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Page: B

	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x1	00	06	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x2	00	11	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x3	01	01	00	1B	00	00	00	00	00	00	00	00	00	00	00	00
x4	10	11	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x5	00	00	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x6	80	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x7	01	08	1B	1B	00	00	00	00	00	00	00	00	00	00	00	00
x8	00	07	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
x9	05	05	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xA	05	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xB	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xC	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xD	00	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xE	FF	80	1B	00	00	00	00	00	00	00	00	00	00	00	00	00
xF	FF	00	1B	00	00	00	00	00	00	00	00	00	00	00	00	00

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2-3. Camera Adjustments

1. 28 MHz Origin Oscillation Adjustment (VC-292 board)

Set the frequency of the clock for synchronization.
If it incorrectly set, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	Pin ⑧ of IC302
Measuring Instrument	Frequency counter and Adjusting remote commander
Adjustment Page	F
Adjustment Address	4D
Specified Value	Pin ⑧ of IC302 : f = 14.318181 MHz ±68 Hz (NTSC) f = 14.187500 MHz ±68 Hz (PAL)

Note

- NTSC model : SNC-RZ30N
  PAL model : SNC-RZ30P

Adjusting method

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 4D, change the data and set the clock frequency (f) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.

2. SYNC Level Adjustment (MC-141 board)

Set the Y signal output level.

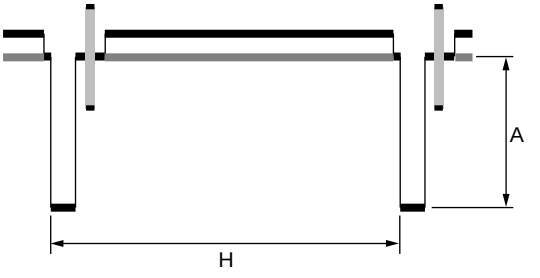
Subject	All black
Measurement Point	Pin ⑳ of CN901
Measuring Instrument	Oscilloscope and Adjusting remote commander
Adjustment Page	F
Adjustment Address	67
Specified Value	A = 285 ±5 mV (NTSC) A = 300 ±5 mV (PAL)

Notes

- Terminate at 75 Ω resistor and measure.
- NTSC model : SNC-RZ30N
  PAL model : SNC-RZ30P

Adjusting method

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 67, change the data and set the SYNC level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.



3. BURST Level Adjustment (MC-141 board)

Set the chroma signal output level.

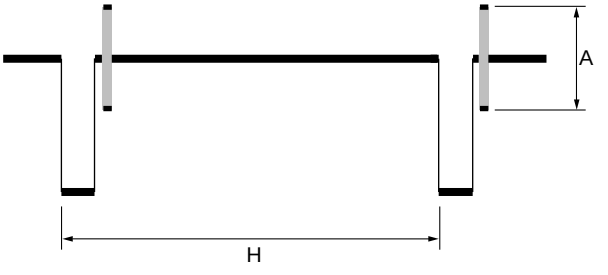
Subject	All black
Measurement Point	Pin ⑳ of CN901
Measuring Instrument	Oscilloscope and Adjusting remote commander
Adjustment Page	F
Adjustment Address	68
Specified Value	A = 285 ±5 mV (NTSC) A = 300 ±5 mV (PAL)

Notes

- Terminate at 75 Ω resistor and measure.
- NTSC model : SNC-RZ30N
  PAL model : SNC-RZ30P

Adjusting method

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 68, change the data and set the burst level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 00.



4. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset. If it incorrectly adjusted, iris may occurs oscillation or white balance of indoors or outdoors may improper operation.

Subject	Not required
Measurement Point	HALL DATA (Page: 1)
Measuring Instrument	Display data of the charactor generator on the adjusting remote commander
Adjustment Page	F
Adjustment Address	38, 39, 3A
Specified Value	When select page: 6, address: 01 and set data: 01, display data at page:1 is specified within 80 ±02h. When select page: 6, address: 01 and set data: 03, display data at page:1 is specified within 16 ±02h.

Adjusting Method

1) Select page: 6, address: 94, and set data: 80.
2) Select page: 6, address: 95, and set data: 16.
3) Select page: 6, address: 01, and set data: 6D.
4) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, adjustment is finished.
5) Select page: 6, address: 01, and set data: 00.

Checking Method

1) Select page: 0, address: 03 and set data: 03, and indicates the HALL DATA at page: 1 on the screen.
2) Select page: 6, address: 01 and set data: 01, check the data at page: 1 to the specified value.
3) Select page: 6, address: 01 and set data: 03, check the data at page: 1 to the specified value.

Processing after Completing Adjustments

1) Select page: 6, address: 94 and set data: 00, press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 95 and set data: 00, press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 03 and set data: 00.
4) Select page: 6, address: 01 and set data: 00.

5. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically. In whichever case, if it incorrectly adjusted, the focus will be deviated during auto focusing/manual focusing.

Note

Before adjustment, make sure that confirm the following item.

1. ICR: OFF

Subject	Flange back adjustment chart (2.0 m from the front of the lens) Note: For luminance, refer to the Note∗1) shown in below.
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3E to 5D, 61

Adjusting method

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Select page: 0, address: 01, and set data: 01.
3) Shoot the chart.
4) Select page: 6, address: 01 and set data: 13.
5) Select page: 6, address: 01 and set data: 15.
6) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, adjustment is completed.

Notes

*1) • Surface luminance of the chart
For adjustment performs correctly, surface luminance setting is required consider that difference of F value CCD sensitivity for the lens and shatter speed between NTSC and PAL.
The surface luminance setting is set to page: 6, address: 01 and data: 13 at the zoom lens TELE end using the PAL models. Consequently, luminance is set to which obtain more than 30 IRE standard value not too dark on the screen.
• The adjustment data will be automatically input to page: F, addresses: 4E to 5D and 61.

Processing after Completing Adjustments

1) Turn off the power and then on the power again.
2) Perform the initializing of the focus zoom again. It is also required that release of the write protection during turn on the power.

6. Picture Frame Setting

Notes

Before adjustment, make sure that confirm the following items.

1. Perform “Flange Back Adjustment” before this adjustment.
2. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

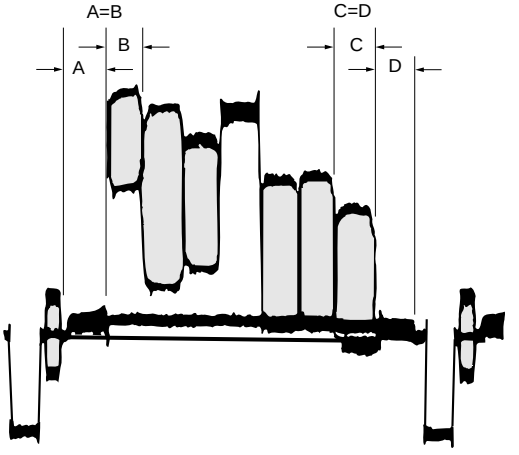
Subject	Color bar chart standard picture frame (1.5 m from the front of the lens)
Measurement Point	Pin ⑳ of CN901
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A = B, C = D, t = 0 ±0.1 msec

Setting method

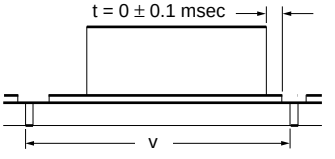
1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using “Color bar chart standard picture frame”.

Check operation on the oscilloscope

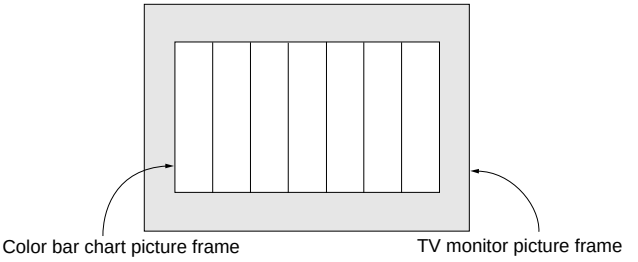
1.Horizontal period



2.Vertical period



Check operation on the TV monitor (under scan mode)



7. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced. If it incorrectly adjusted, improper color reproduction will be produced.

Note

Before adjustment, make sure that confirm the following items.

1. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

Subject	Color bar chart standard picture frame
Measurement Point	Pin ⑳ of CN901
Measuring Instrument	Vectorscope and Adjusting remote commander
Adjustment Page	F
Adjustment Address	47, 49, D7 to D9, DA: page F 02, 03: page D
Specified Value	All color luminance points should settle within each color reproduction frame. (Last page of this manual)

Note

NTSC model : SNC-RZ30N
PAL model : SNC-RZ30P

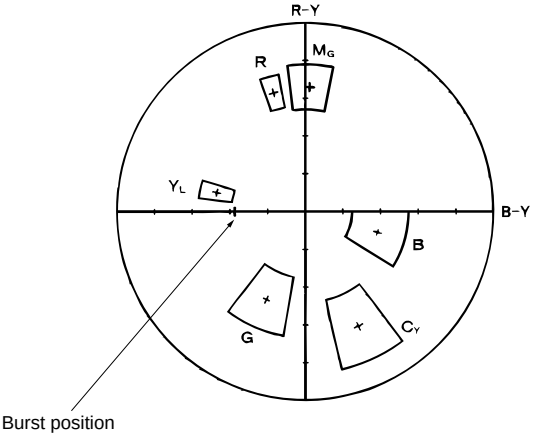
Adjusting method

1) Select page: 0, address: 01 and set data: 01.
2) Select page: 0, address: 01 and set data: 80.
3) Select page: F, address: 8B and set data: 29. (In this case, original data should be memorized)
4) Select page: 6, address: 01 and set data: 3D, select page: F, address: 2B and set data: 17 (NTSC) or data: 97 (PAL). (Two variable number adjustment mode)
5) Operates page: F, addresses: 47, 49, D7 and D8, adjust so that luminance points are specified on the vectorscope.
6) Set the data that memorized in above item 1) to page: F and address: 8B.
7) Copy the data of page: F, addresses: D9 and DA that read out from different model.
8) Write the data that is equal to the data of page: F and address: D9, to page: D and address: 02. Also, write the data that is equal to the data of page: F and address: DA, to page: D and address: 03.

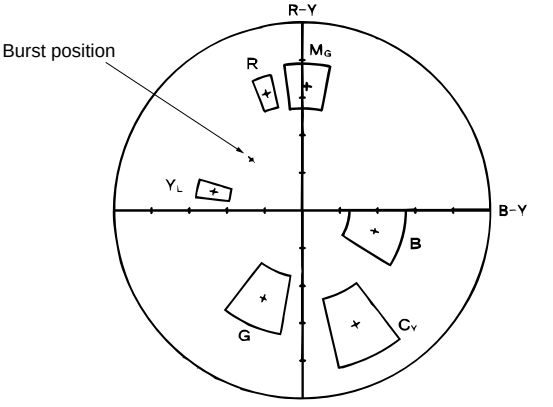
Processing after Completing Adjustments

1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 01, and set data: 00.

For NTSC model



For PAL model



8. AWB & LV Standard Data Input

Notes

Before adjustment, make sure that confirm the following items.

1. Perform “Color Reproduction Adjustment” before this adjustment
2. Check that the data of page: 6 and address: 02 is 00. (Completed Flag)
3. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

Subject	Clear chart (Shoot in color bar standard picture frame)
Adjustment Page	F
Adjustment Address	3C to 41

Adjusting method

1) Select page: 0, address: 01 and set data: 01.
2) Shoot the clear chart in the color bar standard picture frame.
3) Select page: 6, address: 16 and set data: 02.
4) Wait until AWB data is stabilized by passed over 2 seconds after setting it.
5) Select page: 6, address: 01 and set data: 11, and select page: 6, address: 01 and set data: 0D in order.
6) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, data input is completed.

Processing after Completing Adjustments

1) Select page: 6, address: 01 and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 6, address: 16 and set data: 00, and press the PAUSE button of the adjusting remote commander
3) Select page: 0, address: 01 and set data: 00,

Notes

- The adjustment data will be automatically input to page: F, addresses: 3C to 41.
- AWB & LV standard data input is possible during turn on the power at only once.

9. AWB (Auto White Balance) Adjustment

Adjust to the proper auto white balance output data.
If it incorrectly adjusted, auto white balance and color reproducibility will be poor.

Notes

Before adjustment, make sure that confirm the following items.

1. Perform “AWB & LV Standard Data Input” before this adjustment.
2. Digital Zoom: OFF, Camera stabilizer: OFF, ICR: OFF

Subject	Clear chart (Shoot in color bar standard picture frame)
Filter	Filter C14 for color temperature correction
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	42, 43, B8 to BB
Specified Value	R ratio: 2C80 ±40 h B ratio: 5E80 ±60 h

Adjusting method

1) Place the C14 filter for color temperature correction on the lens.
2) Select page: F, addresses: B8 to BB and set the correlation data (shown below) for using of C14 filter. Then, the data before input must be memorized.
   Select page: F, address: B8 and set the upper bite data that objective value of R ratio.
   Select page: F, address: B9 and set the lower bite data that objective value of R ratio.
   Select page: F, address: BA and set the upper bite data that objective value of B ratio.
   Select page: F, address: BB and set the lower bite data that objective value of B ratio.
3) Select page: 6, address: 01 and set data: A7, and select page: 6, address: 01 and set data: A5 in order.
4) Consequently, page: 6, address: 02 and data: 01 is indicated on the screen, data input is completed.
5) Select page: 6, address: 01 and set data: 3F.
6) Select page: 0, address: 03 and set data: 04, then R ratio data makes display on the screen at page: 1.
7) Check that R ratio data is within specified value.
8) Select page: 0, address: 03 and set data: 05, then B ratio data makes display on the screen at page: 1.
9) Check that B ratio data is within specified value.
10) Set the memorized original data as described in item 2) to page: F and addresses: B8 to BB.

Processing after Completing Adjustments

1) Select page: 6, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.
2) Select page: 0, address: 03, and set data: 00, and press the PAUSE button of the adjusting remote commander.
3) Select page: 0, address: 01, and set data: 00.

Notes

- The adjustment data will be automatically input to page: F, addresses: 42 and 43.
- Data input of “9. AWB Adjustment” is possible during turn on the power at only once.

10. Optical Axis Correction Adjustment

Adjust the optical axis to proper position between lens and CCD image sensor.

Note

Before adjustment, make sure that confirm the following item.

1. Digital Zoom: OFF, Camera stabilizer: OFF

Subject	Clear chart
Measurement Point	Pin ⑳ of CN901
Measuring instrument	TV monitor and Adjusting remote commander
Adjustment Page	F
Adjustment Address	60

Adjusting method

1) Set the zoom lens to TELE end and shoot the clear chart that the black circle of 9.0 ±1.5mm in diameter is stuck at center of the chart.
2) Set the lens to WIDE end.
3) Detect the immovable point during zooming, detect the incorrect direction toward center of the screen.
4) The following shows that the data input value toward to the incorrect direction.

Out of Phase	Input data
22.6 ˚C - 67.5 ˚C	01
67.6 ˚C - 112.5 ˚C	02
112.6 ˚C - 157.5 ˚C	03
157.6 ˚C - 202.5 ˚C	04
202.6 ˚C - 247.5 ˚C	05
247.6 ˚C - 292.5 ˚C	06
292.6 ˚C - 337.5 ˚C	07
337.6 ˚C - 22.5 ˚C	08

11. White Balance Check

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Pin ⑳ of CN901
Measuring Instrument	Vectorscope
Specified Value	Figure A to C

Checking method

1) Check that the lens is not covered with either filter.
2) Select page: 2, address: 01, set data: 0F, and press the PAUSE button of the adjusting remote commander.
3) Check that the center of the white luminance point is within the circle shown Figure A.
4) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Select page: 2, address: 01, set data: 23, and press the PAUSE button of the adjusting remote commander.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown Figure B.
8) Remove the C14 filter, and place the ND filter 1.3 (1.0 +0.3) on the lens.
9) Check that the white luminance point stopped moving, and then remove the ND filter 1.3.
10) Check that the center of the white luminance point settles within the circle shown Figure C.

Processing after Completing Adjustments

1) Select page: 2, address: 01, and set data: 00, and press the PAUSE button of the adjusting remote commander.

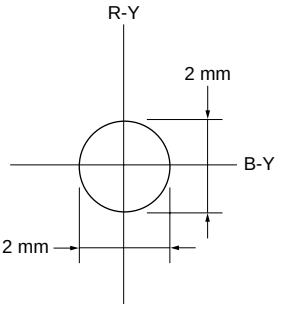


Figure A

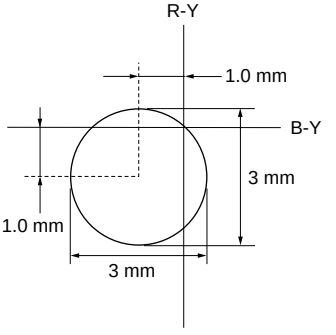


Figure B

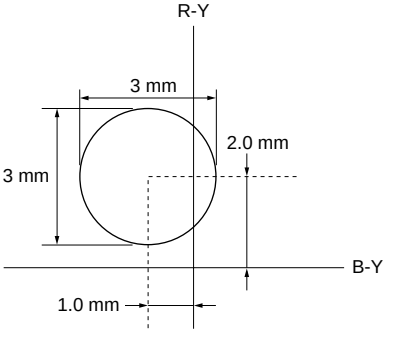
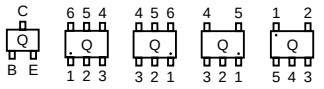


Figure C

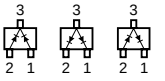
THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

- **For printed wiring boards.**
- ▒▒▒▒: Pattern from the side which enable seeing.
  (The other layer's patterns are not indicated.)
- Through hole is omitted.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.

Transistor



Diode



- **For schematic diagrams.**
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000 Ω, MΩ : 1000 kΩ.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example C541 L452
22U 10UH
TA A 2520

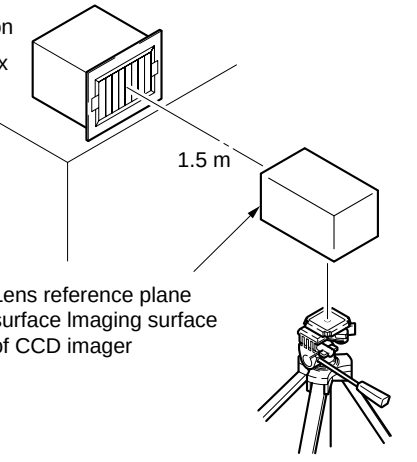
Kinds of capacitor
Temperature chracteristics
External dimensions (mm)

- Constants of resistors, capasitors, ICs and etc. with XX indicate that they are not used. In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Circled numbers refer to waveforms.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- **Measuring conditions waveform.**
- The object is color bar chart of pattern box.

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

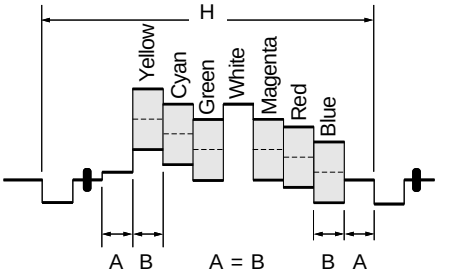


Fig. a (Video output terminal output waveform)

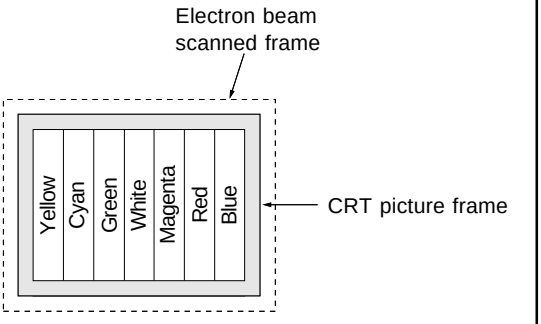


Fig. b (Picture on monitor TV)

2-4. Pan / Tilt Adjustments

Be sure to perform the pan and tilt adjustments after the following procedure.
In case of:

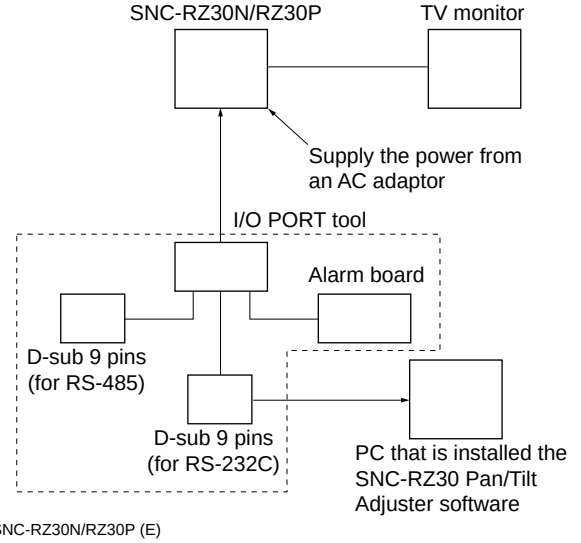
- Replace EEPROM (IC1006) on the MDR-19 board
- Replace or repair the camera block, MDR-19 board, MDR-20 board or SE-656 board
- Remove the camera block, MDR-20 board or SE-656 board.
- Replace the pan motor or tilt motor
- Perform the disassembling and assembling of the pan and tilt mechanical block
- Perform the disassembling and assembling of the cabinet on the pan and tilt driving block

Equipment required

- I/O PORT tool (J-6432-900-A)
  I/O PORT tool consists of a harness I/O PORT (J-6432-910-A) and an alarm board (J-6432-920-A).
- SNC-RZ30 Pan/Tilt Adjuster software (J-6432-860-A)
- Personal computer (Hereafter referred to as PC)
- AC adaptor (1-468-626-31)

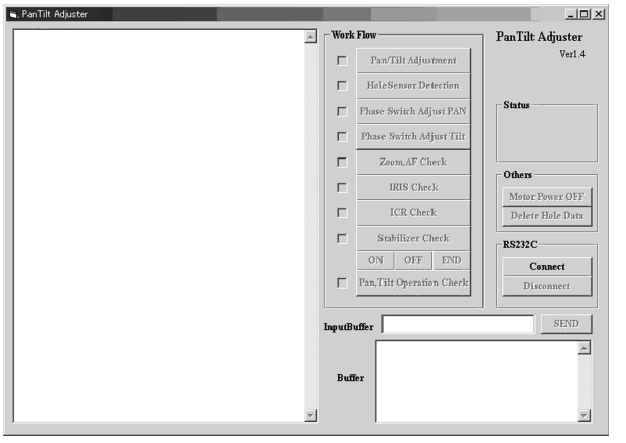
Connection

1. Remove the bottom plate (base plate assembly) of the SNC-RZ30N/RZ30P. (Refer to Section 1-4-5.)
2. Turn on the power of PC.
3. Set the DIP switch S001 to 1110 of the SY-303 board.
4. Connect each equipment according to the following figure.
5. Connect an AC adaptor to DC IN connector of the SNC-RZ30N/30P, then turn on the power of the SNC-RZ30N/RZ30P.


SNC-RZ30N/RZ30P
TV monitor
Supply the power from an AC adaptor
I/O PORT tool
Alarm board
D-sub 9 pins (for RS-485)
D-sub 9 pins (for RS-232C)
PC that is installed the SNC-RZ30 Pan/Tilt Adjuster software

Preparation

1. Install the SNC-RZ30 Pan/Tilt Adjuster software to PC.
2. Start the SNC-RZ30 Pan/Tilt Adjuster software. Then, Pan/Tilt adjuster screen is displayed on the screen.



3. Click Connect button in the RS-232C column. Then other buttons may possible for using state.
4. Click Motor Power Off button in the Other column.

Note

In case the unit is adjusted once, motor torque is loaded to the SNC-RZ30N/RZ30P. If this SNC-RZ30N/RZ30P is adjusted again in that case, it may possible to fail the adjustment. In that case, perform the adjustment after click Motor Power Off button in the Other column and then confirm the motor torque is unloaded.

5. Click Delete Hole Data button in the Other column. Then the hole sensor information that is recorded in EEPROM is deleted.
6. Set the pan to center position (SONY logo in front position). Set the tilt with the lens side up.

2-4-1. Pan / Tilt Adjustments

Performs the detection of the end of mechanism, sensor position and EEPROM writing automatically.

1. Click Pan/Tilt Adjustment button of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 06 22 13 FF Protect released
   81 01 06 1F 03 FF Adjustment complete flag cleared
   81 01 06 09 FF Adjustment
2. Confirm the following specification is satisfied.
   Specification: • "Complete Adjustment" should be displayed on the screen of PC.
   • Check mark should be located in the check box at the side of Pan/Tilt Adjustment button.

After completing the adjustment, the SNC-RZ30N/RZ30P restarts automatically. Wait until pan/tilt are turned to front position, then, proceed with the next adjustment.

2-4-2. Hole Sensor Detection

Performs the hole sensor position detection and EEPROM writing automatically.

1. Click Hole Sensor Detection button of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 06 22 13 FF Protect released
   81 01 06 1F 03 FF Adjustment complete flag cleared
   81 01 06 1C 24 FF Hole sensor detection
   81 01 06 1F 02 FF Adjustment complete flag set
2. Confirm the following specification is satisfied.
   Specification: • "Complete Hole-Sensor Detection" should be displayed on the screen of PC.
   • Check mark should be placed in the check box at the side of Hole Sensor Detection button.

2-4-3. Phase Switch Fine Adjustment for PAN

Performs the fine adjustment automatically to purpose of increases the phase switch precision by the hole sensor at Pan direction.

1. Click Phase Switch Adjust PAN button of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 06 22 13 FF Protect released
   81 01 06 1F 03 FF Adjustment complete flag cleared
   81 01 06 26 00 0A 06 06 0C 08 00 08 01 08 FF
   PAN fine adjustment
   81 01 06 1F 02 FF Adjustment complete flag set
2. Confirm the following specification is satisfied.
   Specification: • "Complete Phase-switch-adjust PAN" should be displayed on the screen of PC.
   • Check mark should be located in the check box at the side of Phase Switch Adjust PAN button.

2-4-4. Phase Switch Fine Adjustment for Tilt

Performs the fine adjustment automatically for the purpose of increases the phase switch precision by the hole sensor at Tilt direction.

1. Click Phase Switch Adjust Tilt button of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 06 22 13 FF Protect released
   81 01 06 1F 03 FF Adjustment complete flag cleared
   81 01 06 27 00 06 04 06 0C 08 00 08 01 08 FF
   Tilt fine adjustment
   81 01 06 1F 02 FF Adjustment complete flag set
2. Confirm the following specification is satisfied.
   Specification: • "Complete Phase-switch-adjust Tilt" should be displayed on the screen of PC.
   • Check mark should be placed in the check box at the side of Phase Switch Adjust PAN button.

2-4-5. Zoom and AF Checking

Performs the checking for zoom and focus motor operations of the camera block automatically.

1. Click both Zoom and AF Check buttons of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 04 57 00 FF Normal AF Mode setting
   81 01 04 07 25 FF Tele speed: 5
   After 2 seconds
   81 01 04 07 00 FF Stop
2. Confirm the following specification is satisfied.
   Specification: • The color monitor images are zoomed and then images in focus should be displayed on the screen.
   • "Complete Zoom, AF Check" should be displayed on the screen of PC.
   • Check mark should be placed in the check box at the side of Zoom and AF Check button.

2-4-6. Iris Motor Check

Performs the checking for iris motor operation of the camera block automatically.

1. Click IRIS Check button of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 04 39 03 FF Manual Mode setting
   81 01 04 4B 00 00 00 00 FF
   Close of IRIS
   After 5 seconds
   81 01 04 39 00 FF Full Auto Mode setting
2. Confirm the following specification is satisfied.
   Specification: • When click IRIS Check button, TV monitor screen darkens immediately. Approximately after 5 seconds, it should returns to originally state.
   • "Complete IRIS Check" should be displayed on the screen of PC.
   • Check mark should be placed in the check box at the side of IRIS Check button.

2-4-7. ICR Check

Checks the ICR operation automatically.

1. Click ICR Check button of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 04 51 03 FF Manual Mode setting
   81 01 04 01 02 FF ICR ON
   After 5 seconds
   81 01 04 01 03 FF ICR OFF
2. Confirm the following specification is satisfied.
   Specification: • When IRIS Check button is clicked, TV monitor screen becomes darkens mode (black and white images) immediately. Approximately after 5 seconds, it should return to original state (color images).
   • "Complete ICR Check" should be displayed on the screen of PC.
   • Check mark should be located in the check box at the side of ICR Check button.

2-4-8. Stabilizer Check

Visually check if the stabilizer function operates normally.

1. Click Stabilizer Check button of the Work Flow column on the Pan/Tilt Adjuster screen.
2. Click ON button. Then, the following VISCA commands are issued automatically.
   81 01 04 34 02 FF Stabilizer function ON
3. Move the SNC-RZ30N/RZ30P to sideways quickly, then confirm the following specification is satisfied.
   Specification: Confirm the shaking on the TV monitor screen has been stopped slowly (Stabilizer ON).
4. Click OFF button. Then, the following VISCA commands are issued automatically.
   81 01 04 34 03 FF Stabilizer function OFF
5. Move the SNC-RZ30N/RZ30P to sideways quickly, then confirm the following specification is satisfied.
   Specification: Confirm the shaking on the TV monitor screen has been stopped immediately (Stabilizer OFF).
6. Click END button.

7. Confirm the following specification is satisfied.
   Specification: • "Complete Stabilizer Check" should be displayed on the screen of PC.
   • Check mark should be placed in the check box at the side of Stabilizer Check button.

2-4-9. Pan/Tilt Operation Check

Confirms the Pan and Tilt operates normally.

1. Click Pan, Tilt Operation Check button of the Work Flow column on the Pan/Tilt Adjuster screen. Then, the following VISCA commands are issued automatically.
   81 01 06 04 FF Move to home position
   81 01 06 03 10 10 00 05 01 00 00 02 08 08 FF
   Move to 90˚C at right and 45˚C at upper sides
2. Confirm the following specification is satisfied.
   Specification: • Pan operation should be move to 90˚C at right side and Tilt should be move to 45˚C at upper side, from initial setting values.

Procedure after completing the adjustment

After completing the pan/tilt adjustments, perform the following procedure.

1. Click Disconnect button in RC-232C column of the Pan/Tilt Adjuster screen.
2. Turn off the power of SNC-RZ30N/RZ30P, then remove the terminal table tool and coaxial cable.
3. Change the DIP switch S001 setting to 0000 of the SY-303 board.

2-5. Procedure for SY-303 Board Replacement

When replacing the SY-303 board, perform the following procedure.
- Replace the old MAC address label with the new one.
- Rewriting of a serial number

2-5-1. Re-sticking of MAC Address Label

When replacing the SY-303 board, it is necessary to change the MAC address label that is stuck on the bottom of the unit, to the new one. When replacing the SY-303 board, replace the old label with a new MAC address label that is supplied with the new SY-303 board.

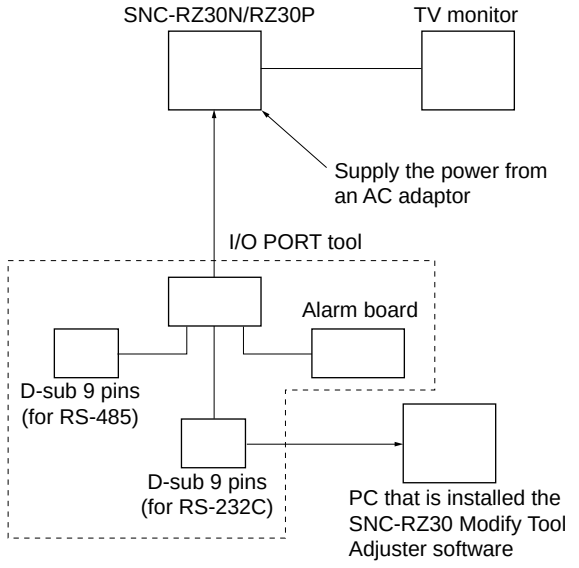
2-5-2. Rewriting of Serial Number

Equipment required

- I/O PORT tool (J-6432-900-A)
  I/O PORT tool consists of a harness I/O PORT (J-6432-910-A) and an alarm board (J-6432-920-A).
- SNC-RZ30 Modify Tool software (J-6432-850-A)
- RS-485/RS-232C converter (J-6432-870-A)
- Personal computer (Hereafter referred to as PC)
- AC adaptor (1-468-626-31)

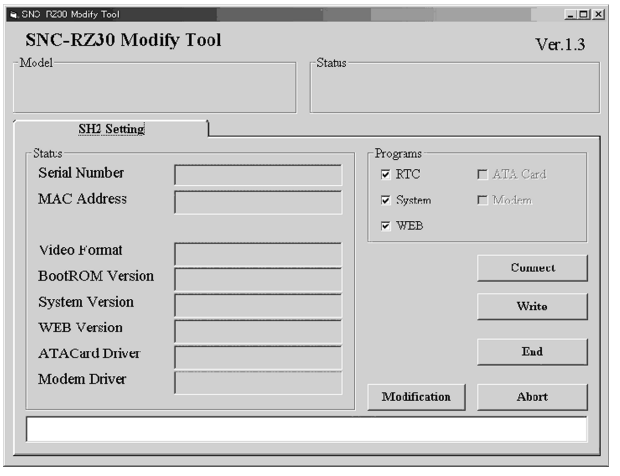
Connection

1. Remove the bottom plate (base plate assembly) of the SNC-RZ30N/RZ30P. (Refer to Section 1-4-5)
2. Turn on the power of PC.
3. Connect each equipment according to the following figure.
4. Set the DIP switch S001 to 1110 of the SY-303 board.
5. Connect an AC adaptor to DC IN connector on the SNC-RZ30N/30P, turn on the power of the SNC-RZ30N/RZ30P. (Confirm the Power LED blinking (Debug mode))

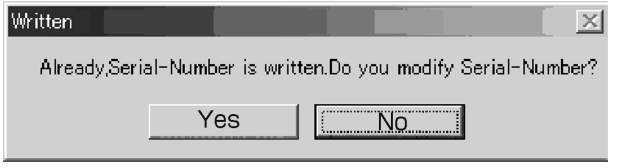

SNC-RZ30N/RZ30P
TV monitor
Supply the power from an AC adaptor
I/O PORT tool
Alarm board
D-sub 9 pins (for RS-485)
D-sub 9 pins (for RS-232C)
PC that is installed the SNC-RZ30 Modify Tool Adjuster software

Rewriting of Serial Number

1. Install the SNC-RZ30 Modify Tool to PC.
2. Start the SNC-RZ30 Modify Tool. Then, SNC-RZ30 Modify Tool Adjuster screen is displayed on the screen.
3. Click Connect button. Then, following dialog box appears on the screen.



4. Select “Yes”.



5. Confirm the following specification is satisfied.
   Specification: • “Complete!” should be indicated in Status column.
   • Text box of Serial Number should be blanked, therefore it may possible to writing.
6. Release the check marks of all (RTC, System and WEB) in the Programs column.
7. Type a new serial number in the text box of Serial Number.
8. Click Write button, then confirm the following specification is satisfied.
   Specification: “Complete!” should be indicated in Status column.

Procedure after Serial Number Typing

1. Click END button.
2. Disconnect DC IN connector of the SNC-RZ30N/RZ30P and remove the terminal table tool.
3. Change the DIP switch S001 setting to 0000 (normal mode) of the SY-303 board.

Note

To confirming the serial number writing is performed correctly, click Connect button again. Then, latest information for the SNC-RZ30N/RZ30P is indicated on the screen.

2-6. Overall Checking

Equipment required

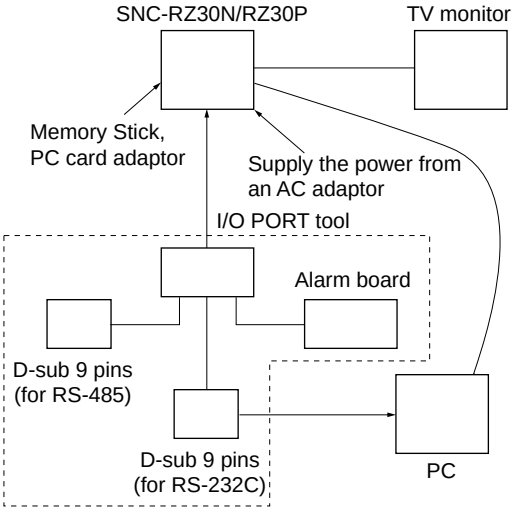
- I/O PORT tool (J-6432-900-A)
  I/O PORT tool consists of a harness I/O PORT (J-6432-910-A) and an alarm board (J-6432-920-A).
- SNC-RZ30 Modify Tool software (J-6432-850-A)
- Personal computer (Hereafter referred to as PC)
  Specification for PC

CPU:	Pentium III 500 MHz and higher
RAM capacity:	128 MHz and higher
Monitor:	XGA and higher may possible for displaying
OS:	Win98/Me/NT2.0/2000/XP
Corresponding browser:	IE5.5, 6.0
Browser setting:	JAVA may possible for using Security “under Middle” Proxy setting Off
Others:	All of anti-virus and firewall software interrupted

- Ethernet cable (UTP category 5, cross cable)
- AC adaptor (1-468-626-31)
- Memory Stick (16 MB and higher) and PC Card adaptor (MSAC-PC2)

Preparation

1. Network setting of PC is set as follows.
   IP address: 192.168.0.200
   NetMask: 255.255.255.0
2. Turn on the power of PC.
3. Connect each equipment according to the following figure.
4. Turn on the power of the TV monitor.



5. Connect an AC adaptor to DC IN connector of the SNC-RZ30N/RZ30P.
6. Turn on the power of the SNC-RZ30N/RZ30P. (This should be performed that SNC-RZ30N/RZ30P is assembling state completely)

Confirmation for RTC

Confirm the RTC is backed up by the secondary battery.

1. Start the internet explorer.
2. Type a URL address as follows.
   http://192.168.0.100
3. Click “Active Viewer” to select on the started screen.
4. Confirm the following specification is satisfied.
   Specification: Clock on the upper side of PC should be operated and indicated correctly.

   Note

   Indicated time may vary by the local as follows.
   For UC: GMT−5h (−14h for J models)
   For J: GMT+9h
   For CE: GMT+1h (−8h for J models)

2-6-1. Reconfirmation for Pan/Tilt Operations

Confirm the pan/tilt operation should operate normally in smoothly.

1. Click Setting of the Main Viewer screen, type the "admin" to the user name and password box in the confirmation screen. Then click OK button.
2. Click Camera menu and select "Optical only" from the list box of Zoom mode, and then click Apply button.
3. Close the setting screen.
4. Click Control icon.
5. Pressing ← arrow continuously until move to end of the screen.
6. Confirm the following specification is satisfied.
   Specification: Pan operation should operate normally in smoothly and no abnormal sound toward Pan direction.
7. Pressing → arrow continuously until move to end of the screen, confirm the following specification is satisfied.
   Specification: Pan operation should operate normally in smoothly and no abnormal sound toward Pan direction.
8. Click ○, confirm the following specification is satisfied.
   Specification: Pan position should move normally in smoothly and no abnormal sound at home position.
9. Pressing ↑ arrow continuously until move to end of the screen, confirm the following specification is satisfied.
   Specification: Tilt operation should operate normally in smoothly and no abnormal sound toward Tilt direction. (Lower direction)
10. Pressing ↓ arrow continuously until move to end of the screen, confirm the following specification is satisfied.
    Specification: Tilt operation should operate normally in smoothly and no abnormal sound toward Tilt direction. (Upper direction)
11. Press Tele button continuously until zoom is maximum position, confirm the following specification is satisfied.
    Specification: No jitter images should display on the TV monitor.

2-6-2. Confirmation for Digital Image

Confirm the processor block and ethernet are operated correctly.

1. Click Control icon.
2. Shot the subject using Pan, Tilt (arrows) and Zoom (TELE, WIDE) on the Control screen.
3. Close the setting screen.
4. Confirm the following specification is satisfied.
   Specification: Normal images (images of turn over at the upper and lower sides), that may not occur noisy such as U-matic beat etc, should be displayed on the PC monitor. (640 × 480 images)
   Subject: Color bar chart plus clock

2-6-3. Confirmation for TV Monitor Images

Specification: Normal images (images of turn over at the upper and lower sides), that may not occur noisy such as U-matic beat etc, should be displayed on the TV monitor. (640 × 480 images)
Subject: Color bar chart plus clock

2-6-4. Confirmation for Sensor In and Alarm Out

Confirm the sensor in (×3) and alarm out (×2) operates normally in the terminal table.

1. Click Setting of the Main Viewer screen, type the "admin" to the user name and password box in the confirmation screen. Then click OK button.
2. Click Alarm out1 menu, check the radio button in the "Use alarm out1 function" section. Then, click OK button.
3. Set as follows and click OK button.
   Mode: Alarm
   Alarm: Sensor1, Sensor2, Sensor3
   Available period: Always
   Alarm duration: 1
4. Click Alarm out2 menu, check the radio button in the "Use alarm out2 function" section. Then, click OK button.

5. Set as follows and click OK button.
   Mode: Alarm
   Alarm: Sensor1, Sensor2, Sensor3
   Available period: Always
   Alarm duration: 1
6. Press the three sensors in buttons in order in the terminal table.
   Specification: When press each sensor button, two LED's for alarms out should be lit and then light off them after approximately 1 second.

2-6-5. Confirmation for PC Card Slot

Confirm whether PC card slot and PC card are recognized normally or not.

1. Click Setting of the Main Viewer screen, type the "admin" to the user name and password box in the confirmation screen. Then click OK button.
2. Attach the Memory Stick with PC card adaptor to upper slot (slot A).
3. After approximately 5 seconds, click System menu, confirm the following specification is satisfied.
   Specification: ATA Card (free space: xxxxxxbyte) should be indicated in A slot (adrv) section of the Default URL.
4. Remove the Memory Stick with PC card adaptor from upper slot (slot A), attach it to lower slot (slot B).
5. Wait for approximately 5 seconds, click System menu. Confirm the following specification is satisfied.
   Specification: ATA Card (free space: xxxxxxbyte) should be indicated in B slot (bdrv) section of the Default URL.
6. Remove the Memory Stick with PC Card adaptor from lower slot (slot B).

2-6-6. Confirmation for RS-232C

Confirm the RS-232C operation that formed from transparency type.

1. Connect RS-232C D-sub connector pins 9 (female) connector of the terminal table to Serial D-sub pins 9 (male) connector of PC.
2. Start the terminal software (hyper terminal). (For start setting, refer to "Setting for Hyper Terminal" that described in afterward)
3. Click Setting of the Main Viewer screen, type the "admin" to the user name and password box in the confirmation screen. Check the check box that is memorized password, then click OK button.
4. Click Serial menu, check the radio button of the Standard to "RS232C". Then click OK button.
5. Select the following CGI command from the address list box on the internet explorer.
   CGI command
   http://192.168.0.100/command/httpserial.cgi?writestringandread=SNC-RZ30&timeout=100
6. Confirm the following specification is satisfied.
   Specification: "SNC-RZ30" should be indicated on the hyper terminal.
   (Conformation for Ethernet → RS-232C)
   The images at 320 × 240 should be indicated normally on the Main View screen.
7. After performing Step 5 and within 10 seconds, type the optional character line (example; "SNC-RZ30") using the keyboard.
8. Confirm the following specification is satisfied.
   Specification: After 10 seconds, typed character line (example; "SNC-RZ30") should be indicated on the internet explorer.
   (Confirmation for RS-232C → Ethernet)

Procedure after Confirmation

1. Disconnect the AC adaptor (MPA-AC1) from DC IN connector of the SNC-RZ30N/RZ30P.
2. Turn off the power of the SNC-RZ30N/RZ30P.
3. Close the terminal software (hyper terminal) on PC.

2-6-7. Confirmation for RS-485

Confirms the RS-485 operation that formed from transparency type.

1. Connect D-sub pins 9 connector (for RS-485) of the terminal table tool to RS-485/RS-232C converter (J-6432-870-A). Connect D-sub pins 25 (male) of RS-232C cross cable to RS-485 ⇦⇨ RS-232C, and connect D-sub pins 9 (female) of RS-232C cross cable to PC.
2. Start the terminal software (hyper terminal). (For start setting, refer to “Setting for Hyper Terminal” that described in afterward)
3. Click Setting of the Main Viewer screen, type the “admin” to the user name and password box in the confirmation screen. Check the check box that is memorized password, then click OK button.
4. Click Serial menu, check the radio button of the Standard to “RS485”. Then click OK button.
5. Click Camera menu, select “320 × 240” from the list box of Image Size. Then click Apply button.
6. Select the following CGI command from the address list box on the internet explorer.
   CGI command
   http://192.168.0.100/command/httpserial.cgi?writestringandread=SNC-RZ30&timeout=100
7. Confirm the following specification is satisfied.
   Specification: “SNC-RZ30” should be indicated on the hyper terminal.
   (Confirmation for Ethernet → RS-485)
   The images at 320 × 240 should be indicated normally on the Main View screen.
8. After performing Step 6 and within 10 seconds, type the optional character line (example; “SNC-RZ30”) using the keyboard.
9. Confirm the following specification is satisfied.
   Specification: After 10 seconds, typed character line (example; “SNC-RZ30”) should be indicated on the internet explorer.
   (Confirmation for RS-485 → Ethernet)

Procedure after Confirmation

1. Disconnect the AC adaptor from DC IN connector of the SNC-RZ30N/RZ30P.
2. Turn off the power of the SNC-RZ30N/RZ30P.
3. Close the terminal software (hyper terminal) on PC.

2-6-8. Confirmation for Reset Switch

Performs the confirmation whether reset switch is operated normally or not.

1. Connect the AC adaptor to DC IN connector of the SNC-RZ30N/RZ30P while pressing the reset switch.
2. Turn on the power of the SNC-RZ30N/RZ30P.
3. After Power indicator is lit in green on the front, select http://192.168.0.100 from the list box in address section of the internet explorer.
4. Click “ActiveX Viewer” and select it on the Start screen.
5. Confirm the following specification is satisfied.
   Specification: The screen at 640 × 480 should be indicated normally to the Main View screen on the internet explorer.

Procedure after Confirmation

1. Disconnects Ethernet Cable (UPT category 5, cross cable) between SNC-RZ30N/RZ30P and PC, and BNC coaxial cable between SNC-RZ30N/RZ30P and color monitor. Remove the I/O PORT tool from SNC-RZ30N/RZ30P.
2. Disconnect the AC adaptor from DC IN connector of the SNC-RZ30N/RZ30P.
3. Turn off the power of the SNC-RZ30N/RZ30P.

2-7. Setting for Hyper Terminal

Performs the initial start setting as to hyper terminal.

1. Start the hyper terminal of Windows.
2. Type a new connection name (example; “SNC-RZ30”) in the box, select icon.
3. Click OK button.
4. Select port that is connected between PC and SNC-RZ30N/RZ30P from the “Connection Method (N)”.
   Note
   Normally, there is no problem by selecting at “COM1”. However, there is differing in case of PC configurations.
5. Communication state is set as follows.

Communication speed	9600bps
Data bit	8
Varity	Noting
Stop bit	1
Flow control	Noting

Setting is completed as above-mentioned.

Note

To start this communication state at next time, save this setting state. That is, click “File” tag on the File menu, clicks “Save” and type the File name on the File name box. Then, save this setting state.

2-8. Update of Software

For update of software, there are two methods as follows.

- Debug mode: Using the PC card and serial communications
- Normal mode: Using the PC card and CGI mode

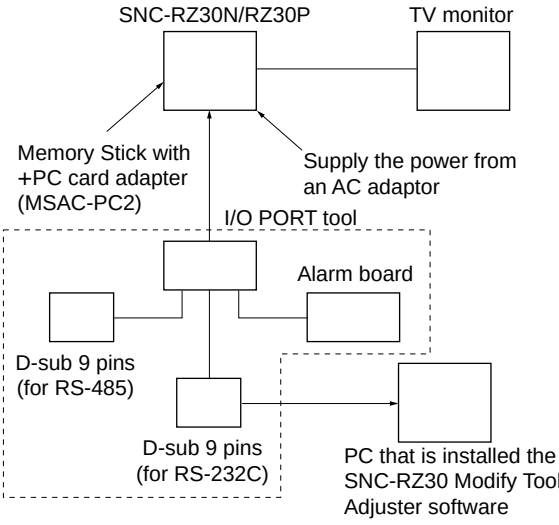
2-8-1. Debug mode

Equipment required

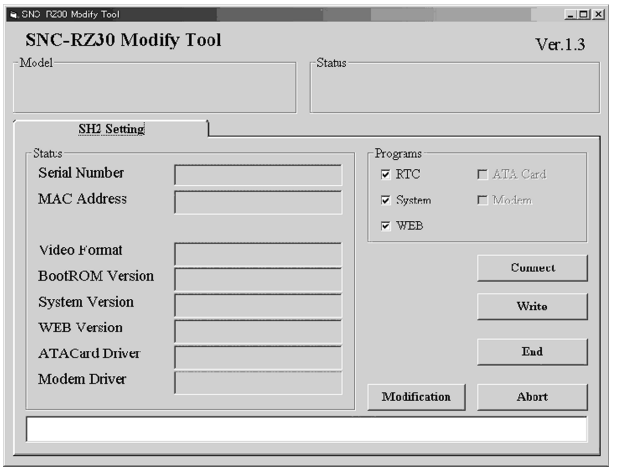
- I/O PORT tool (J-6432-900-A)
  I/O PORT tool consists of a harness I/O PORT (J-6432-910-A) and an alarm board (J-6432-920-A).
- SNC-RZ30 Modify Tool software (J-6432-850-A)
- Personal computer (Hereafter referred to as PC)
- AC adaptor (1-468-626-31)
- UTP category 5 cross cable (for confirmation)

Connection

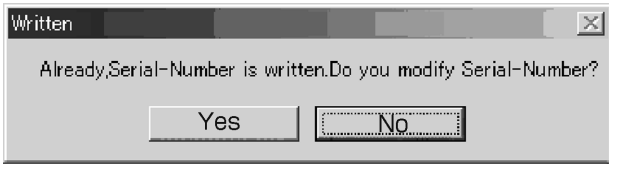
1. Remove the bottom plate (base plate assembly) of the SNC-RZ30N/RZ30P. (Refer to Section 1-4-5.)
2. Turn on the power of PC.
3. Connect each equipment according to the following figure.



4. Set the DIP switch S001 to 1110 of the SY-303 board.
5. Attach the Memory Stick, that is written in updating program, with PC card adaptor to PC card slot A drive (LED side).
6. Connect the AC adaptor to DC IN connector on the SNC-RZ30N/30P, turn on the power of the SNC-RZ30N/RZ30P. (Confirm the Power LED blinking (Debug mode))
7. Confirm the clock on PC is set correctly at date and time. If incorrectly, set them to correctly.
8. Install the SNC-RZ30 Modify Tool to PC.
9. Start the SNC-RZ30 Modify Tool. Then, SNC-RZ30 Modify Tool is displayed.
10. Click Connect button. Then the following dialog box is displayed.



11. Select “No”.



12. Confirm the following specification is satisfied.
    Specification: • “Complete!” should be indicated in Status column.
    • Model name should be indicated in Model column.
    • Model name should be corresponded with Video Format.

Model	Video Format
SNC-RZ30N (J)	NTSC
SNC-RZ30N (UC)	NTSC
SNC-RZ30P (CE)	PAL

Note

When model name is not corresponded with Video Format, dialog box appears on the screen. In this case, serial number may possible set incorrectly. Therefore, confirm the serial number. The following shows model name to serial number.

Model name	Serial Number
SNC-RZ30N (UC)	100001 and higher
SNC-RZ30N (J)	300001 and higher
SNC-RZ30P (CE)	400001 and higher

13. Confirm the check marks are located on the RTC, System and WEB items in Program column.
14. Click Write button.
15. Confirm the “Complete!” is indicated in Status column.
16. Click END button.
17. Turn off the power of the SNC-RZ30N/RZ30P, remove the I/O PORT and BNC coaxial cable from the SNC-RZ30N/RZ30P.
18. Set the DIP switch S001 to 0000 of the SY-303 board. Install the bottom plate of the SNC-RZ30N/RZ30P.
19. Next, set IP address and subnet mask on PC to [192.168.0.200] and [255.255.255.0] respectively. Connect SNC-RZ30N/RZ30P and PC using UTP category 5 cross cable, then turn on the power of the SNC-RZ30N/RZ30P while pressing the reset button.
20. Start the browser (internet explorer) of PC.
21. Type the “http://192.168.0.100/systemlog.html” in address section of browser, press Enter key. When user name and password dialog box appears on the screen, type the “admin” to both dialog boxes, then click OK button.
22. Confirm the following specification is satisfied.
    • Software version should be latest updated.
    • The following four digit log should be indicated.
    System program version has been updated.
    Web contents version has been updated.
    Environmental information is initialized.
    Restarted.
23. Type the “http://192.168.0.100” in address section of browser, press Enter key.
24. Select “Activex viewer” and open the Viewer. When user name and password dialog boxes appears on the screen, type the “admin” to both dialog boxes, then click OK button.
25. Confirm the following specification is satisfied.
    Specification: Normal images (images of turn over at the upper and lower sides), that may not occur noisy such as U-matic beat etc, should be displayed on the PC monitor. (640 × 480 images)

Procedure after Updating

1. Disconnect Ethernet Cable (UTP category 5, cross cable) between SNC-RZ30N/RZ30P and PC. Remove the PC card.
2. Disconnect the AC adaptor to DC IN connector of the SNC-RZ30N/RZ30P, turn off the power of the SNC-RZ30N/RZ30P.

2-8-2. Normal Mode

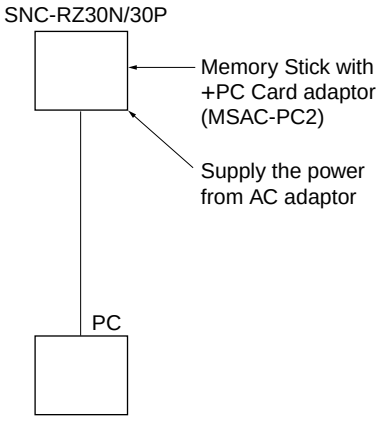
Perform the software updates in normal mode without change the setting of DIP switch on the SY-303 board. However, this method cannot clock (RTC) setting of the SNC-RZ30N/RZ30P.

Equipment Required

- Personal computer (Hereafter referred to as PC)
- AC adaptor (1-468-626-31)
- UTP category 5 cross cable (for confirmation)
- Memory Stick (16 MB and higher) and PC Card adaptor (MSAC-PC2)

Connection

1. Connect each equipment according to the following figure.



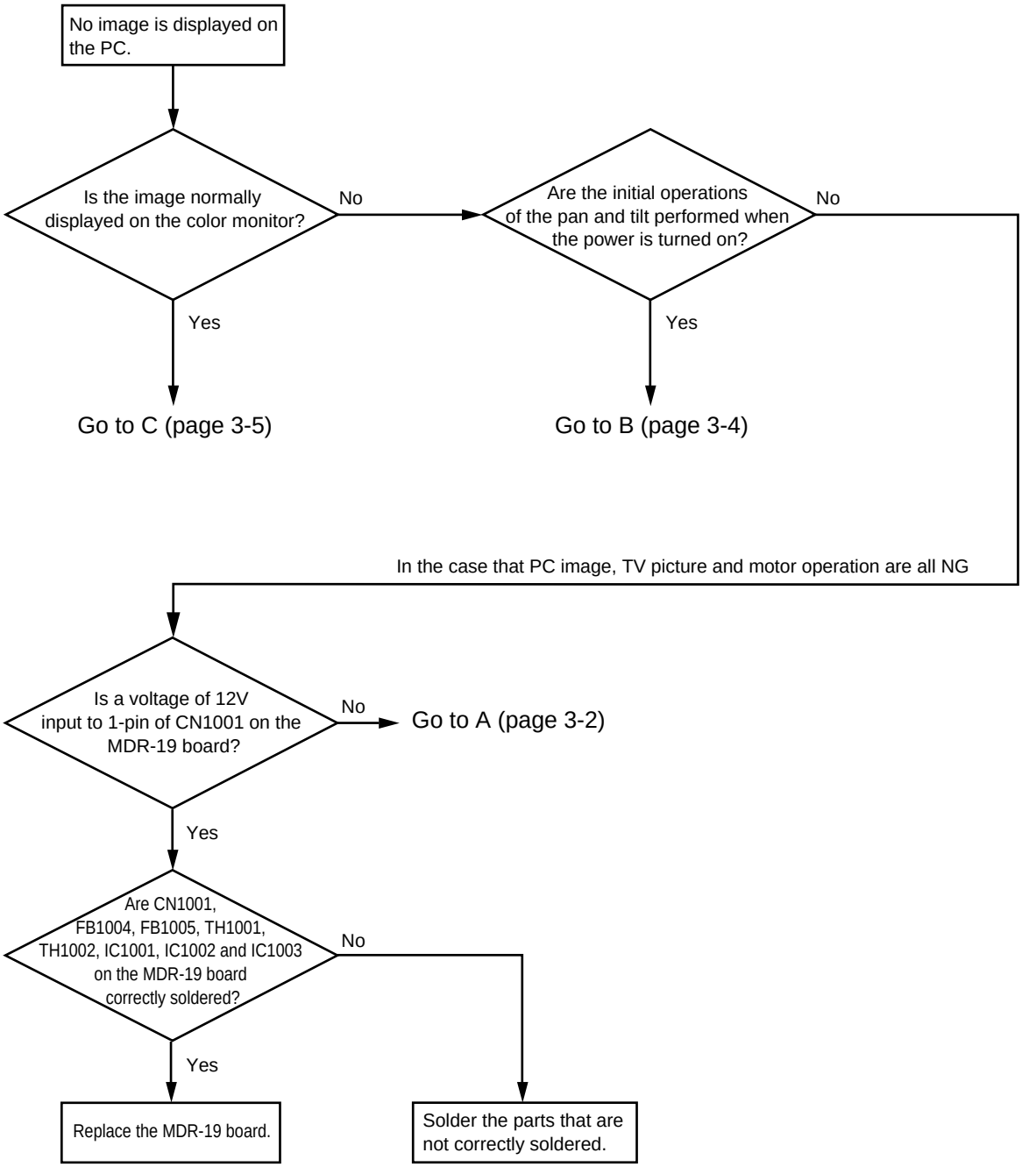
2. Turn on the power of PC.
3. Set IP address and subnet mask on PC to [192.168.0.200] and [255.255.255.0] respectively.
4. Attach the Memory Stick, that is written in updating program, with PC card adaptor to PC card slot A drive (LED side).
5. Turn on the power of the SNC-RZ30N/30P while pressing the reset button.
6. Connect the AC adaptor to DC IN connector on the SNC-RZ30N/30P.
7. Confirm the Power LED is lit of the SNC-RZ30N/30P. (Confirmation of normal mode)
8. Start the browser (internet explorer) of PC.
9. Type the following address in address section of browser, then press Enter key.
   "http://192.168.0.100/command/main.cgi?System=odrvVersionup"
   When user name and password dialog box appears on the screen, type the "admin" to both dialog boxes, then click OK button.
10. Confirm the following specification is satisfied.
    - Both Power and Network LED's should be blinking.
    - After complete the writing, Power LED should be lit in green.
    - After complete the writing, initial operation of Pan/Tilt should be stated up.
11. Type the "http://192.168.0.100/systemlog.html" in address section of browser, press Enter key. When user name and password dialog box appears on the screen, type the "admin" to both dialog boxes, then click OK button.
12. Confirm the following specification is satisfied.
    - Software version should be latest updated.
    - The following four digit log should be indicated.
      [SYSTEM] System program version has been updated.
      [SYSTEM] Web contents version has been updated.
      [SYSTEM] Environmental information is initialized.
      [SYSTEM] Restarted.
13. Type the "http://192.168.0.100" in address section of browser, press Enter key.
14. Select "Activex viewer" and open the Viewer. When user name and password dialog boxes appears on the screen, type the "admin" to both dialog boxes, then click OK button.
15. Confirm the following specification is satisfied.
    Specification: Normal images (images of turn over at the upper and lower sides), that may not occur noisy such as U-matic beat etc, should be displayed on the PC monitor. (640 × 480 images)

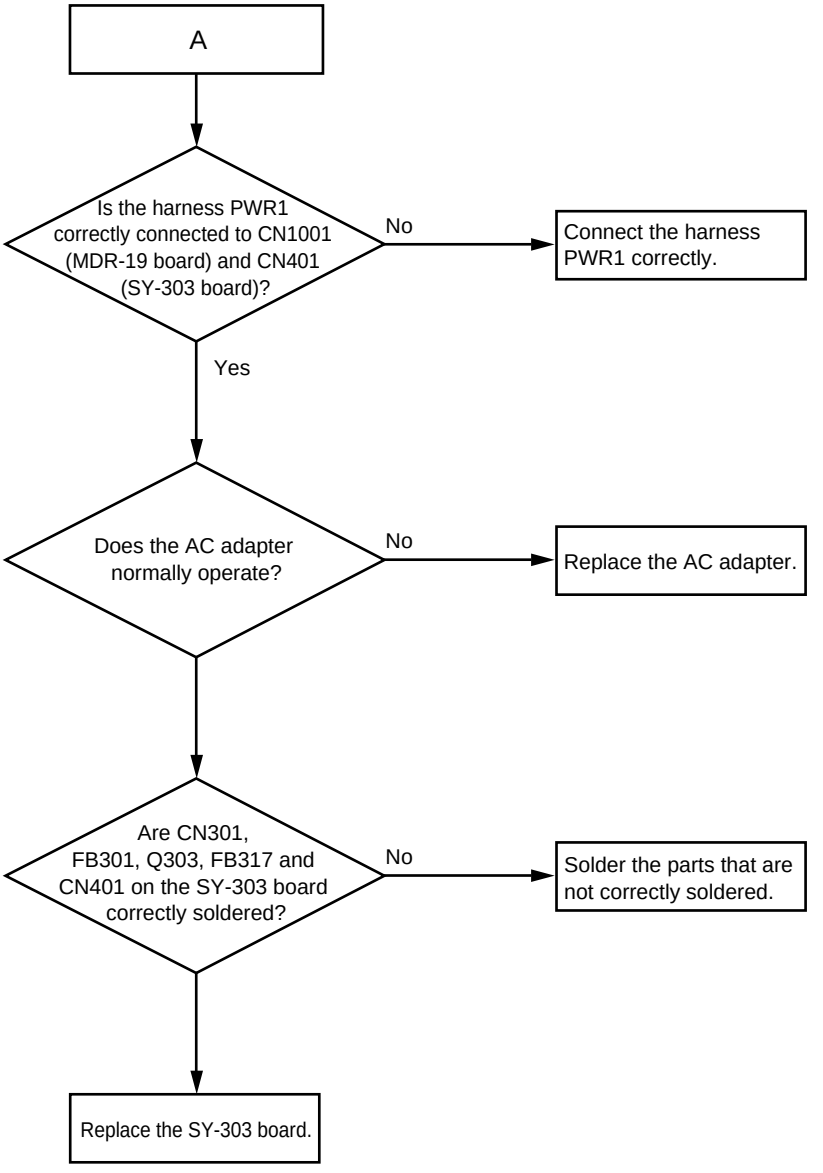
Procedure after Updating

1. Disconnect Ethernet Cable (UTP category 5, cross cable) between SNC-RZ30N/RZ30P and PC. Remove the PC card.
2. Disconnect the AC adaptor to DC IN connector of the SNC-RZ30N/RZ30P, turn off the power of the SNC-RZ30N/RZ30P.

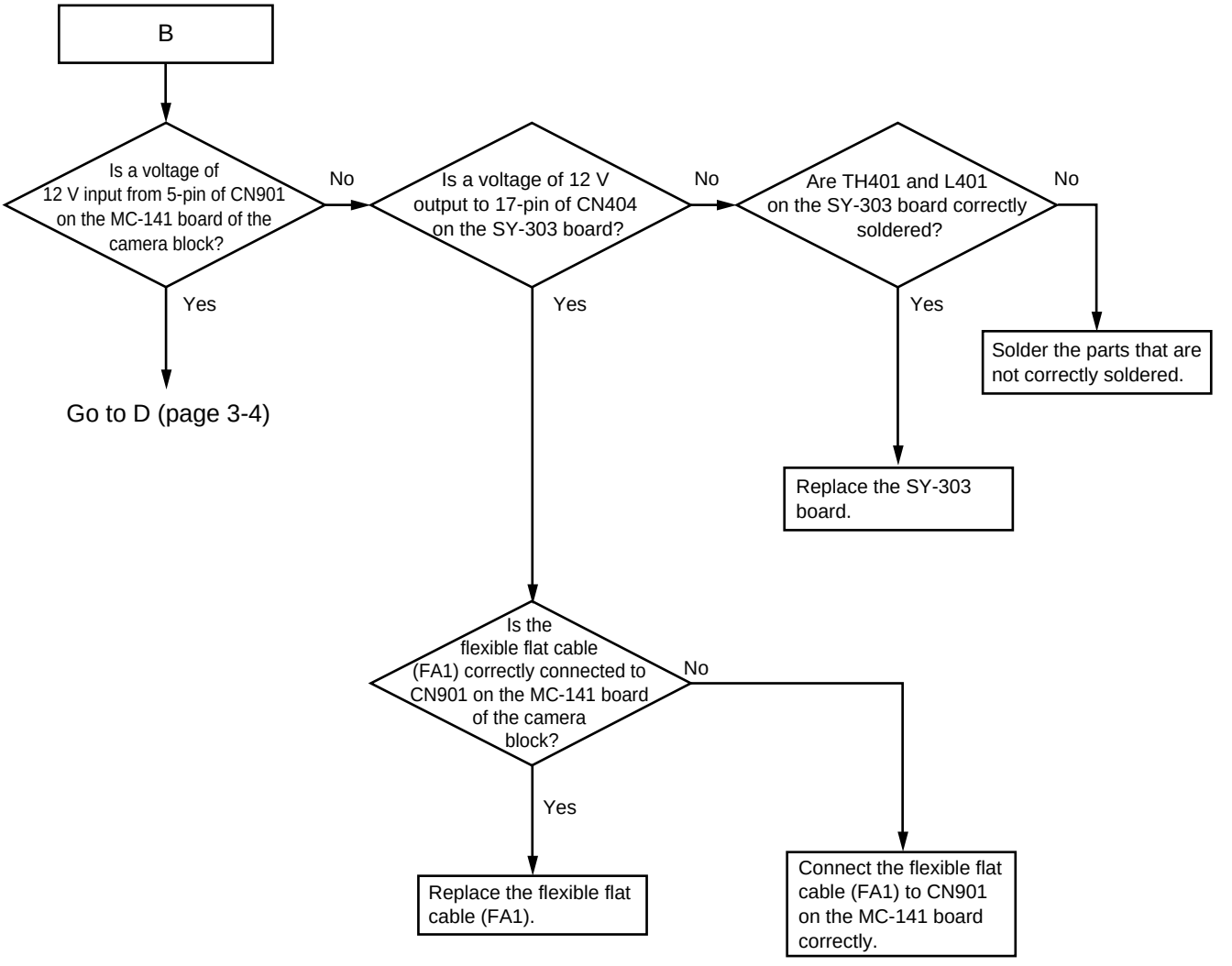
Section 3
Troubleshooting

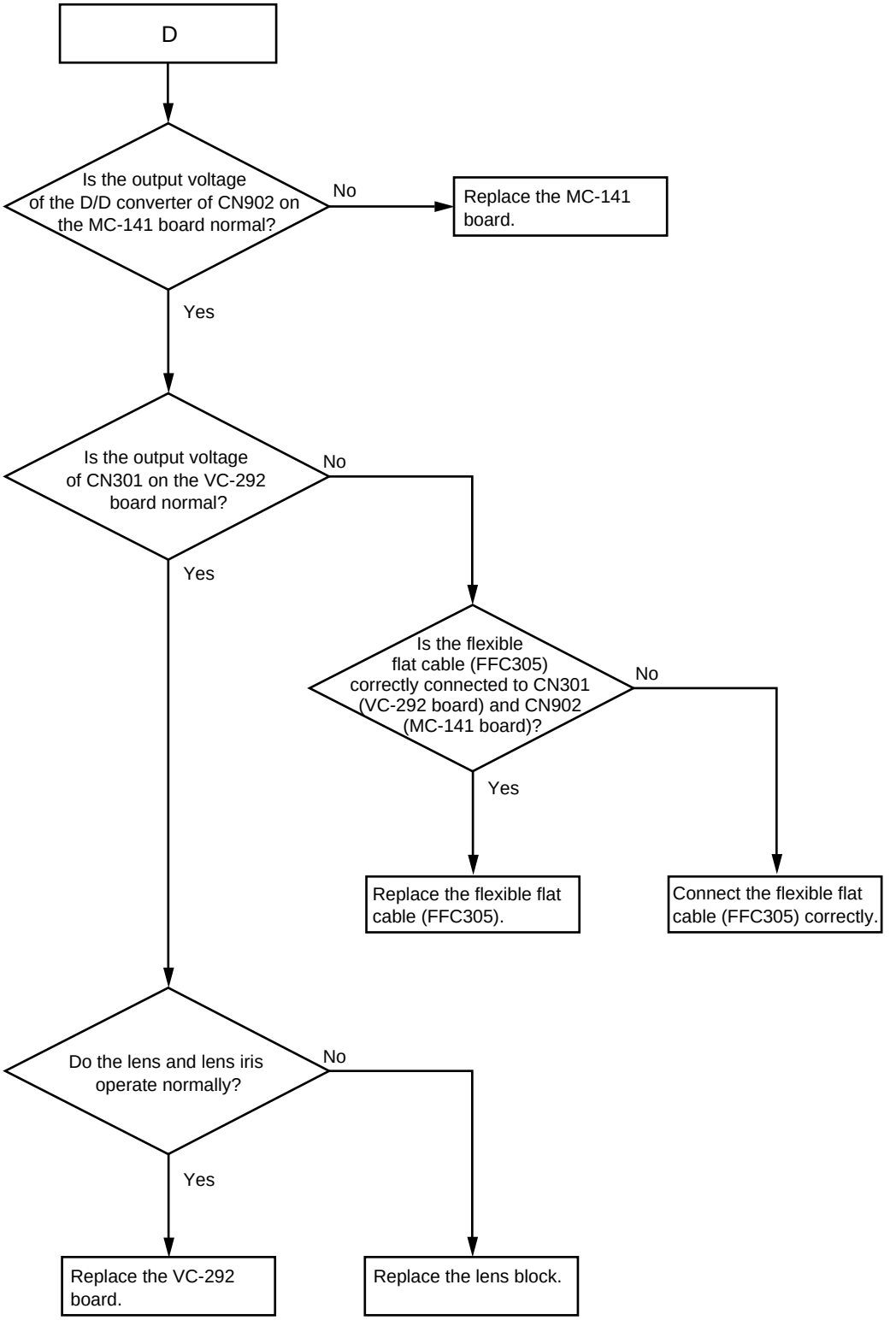
3-1. No image is displayed on the personal computer (referred to as PC hereafter) (When the Power LED is lit)


No image is displayed on the PC.
Is the image normally displayed on the color monitor?
No
Are the initial operations of the pan and tilt performed when the power is turned on?
No
Yes
Yes
Go to C (page 3-5)
Go to B (page 3-4)
In the case that PC image, TV picture and motor operation are all NG
Is a voltage of 12V input to 1-pin of CN1001 on the MDR-19 board?
No
Go to A (page 3-2)
Yes
Are CN1001, FB1004, FB1005, TH1001, TH1002, IC1001, IC1002 and IC1003 on the MDR-19 board correctly soldered?
No
Yes
Replace the MDR-19 board.
Solder the parts that are not correctly soldered.

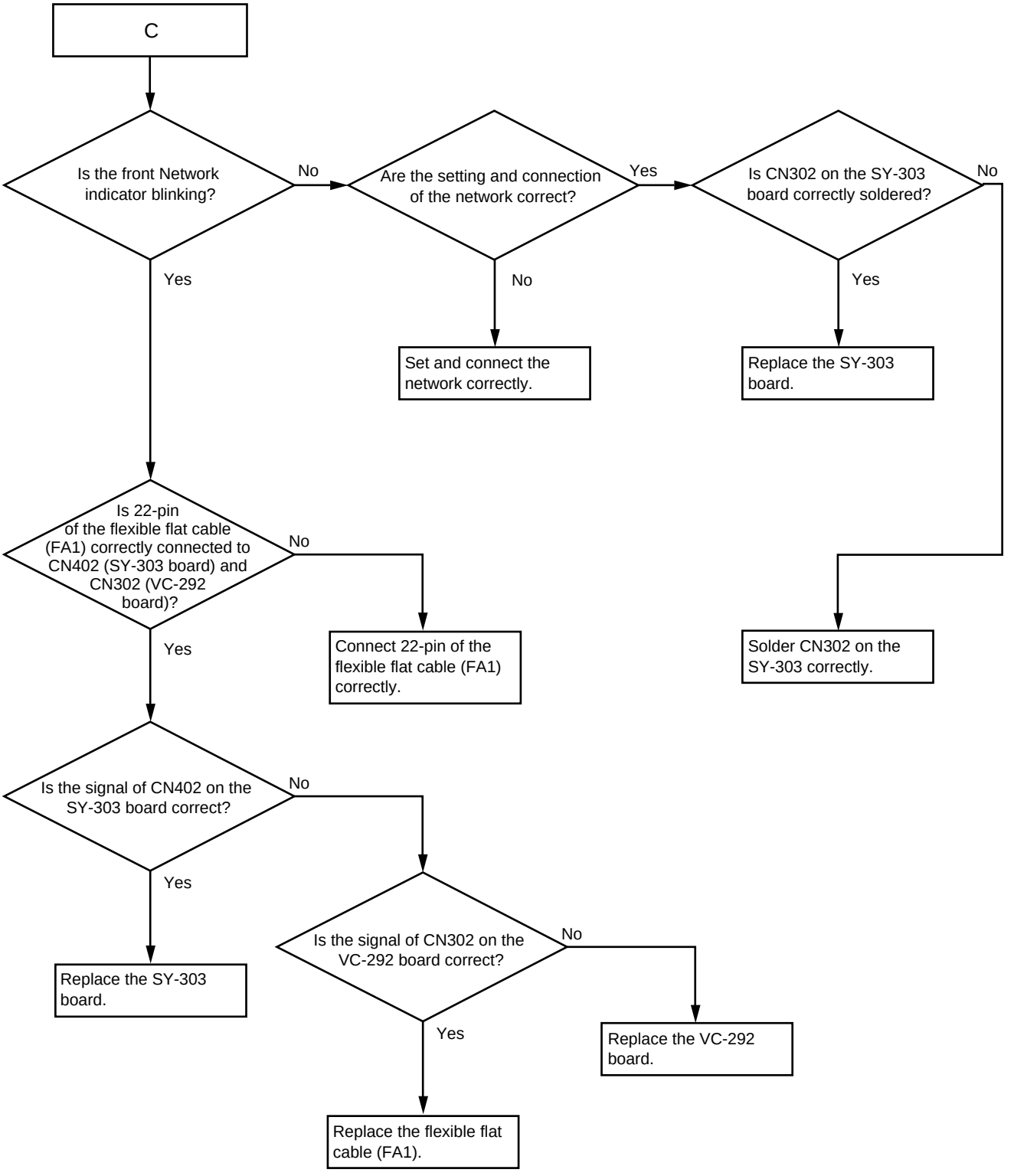

A
Is the harness PWR1 correctly connected to CN1001 (MDR-19 board) and CN401 (SY-303 board)?
No
Connect the harness PWR1 correctly.
Yes
Does the AC adapter normally operate?
No
Replace the AC adapter.
Are CN301, FB301, Q303, FB317 and CN401 on the SY-303 board correctly soldered?
No
Solder the parts that are not correctly soldered.
Replace the SY-303 board.

3-2. Initial operation of motor is normal but PC image and TV picture are NG (When the Power LED is lit)

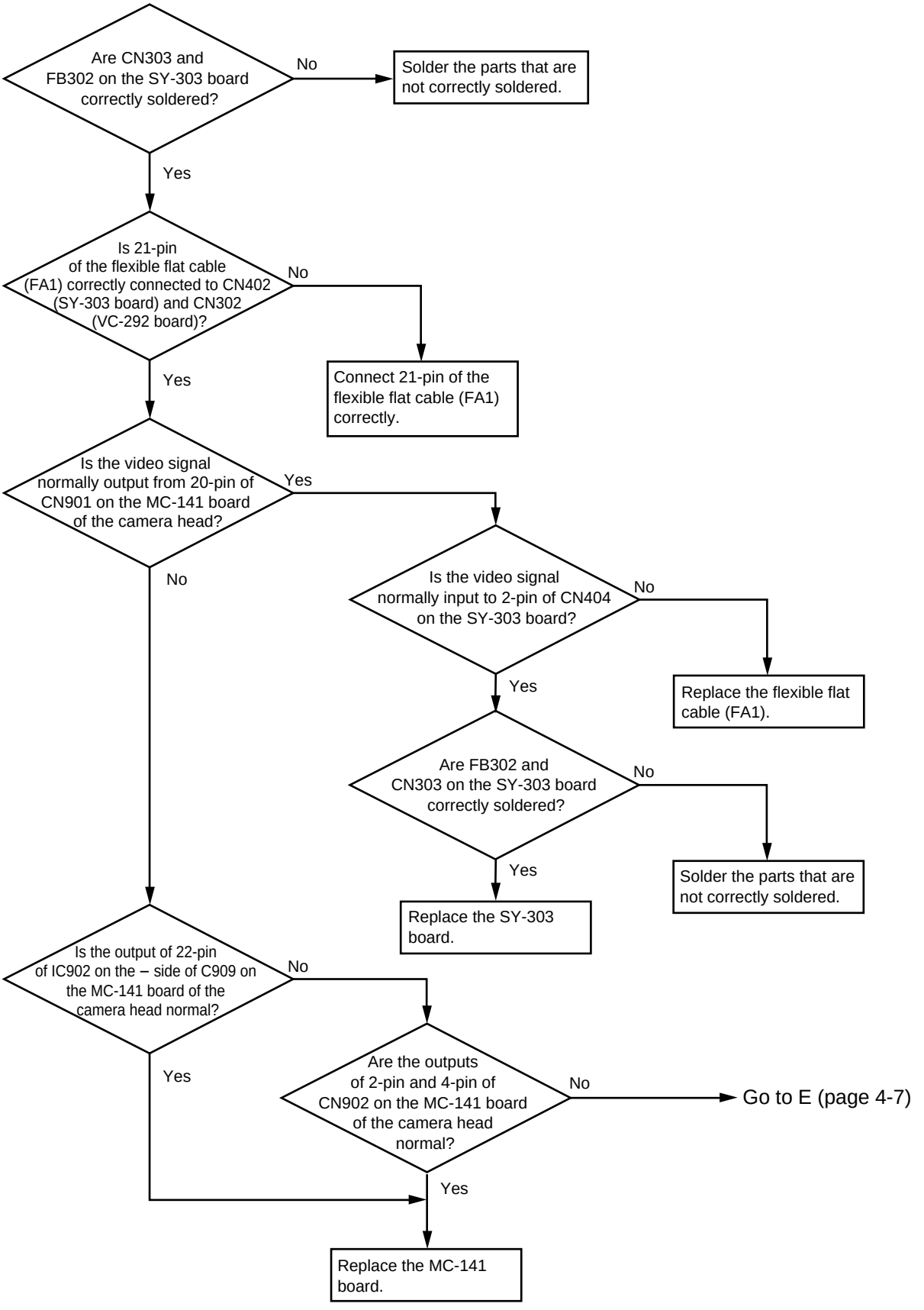

B
Is a voltage of 12 V input from 5-pin of CN901 on the MC-141 board of the camera block?
No
Is a voltage of 12 V output to 17-pin of CN404 on the SY-303 board?
No
Are TH401 and L401 on the SY-303 board correctly soldered?
No
Yes
Yes
Yes
Go to D (page 3-4)
Solder the parts that are not correctly soldered.
Replace the SY-303 board.
Is the flexible flat cable (FA1) correctly connected to CN901 on the MC-141 board of the camera block?
No
Yes
Replace the flexible flat cable (FA1).
Connect the flexible flat cable (FA1) to CN901 on the MC-141 board correctly.

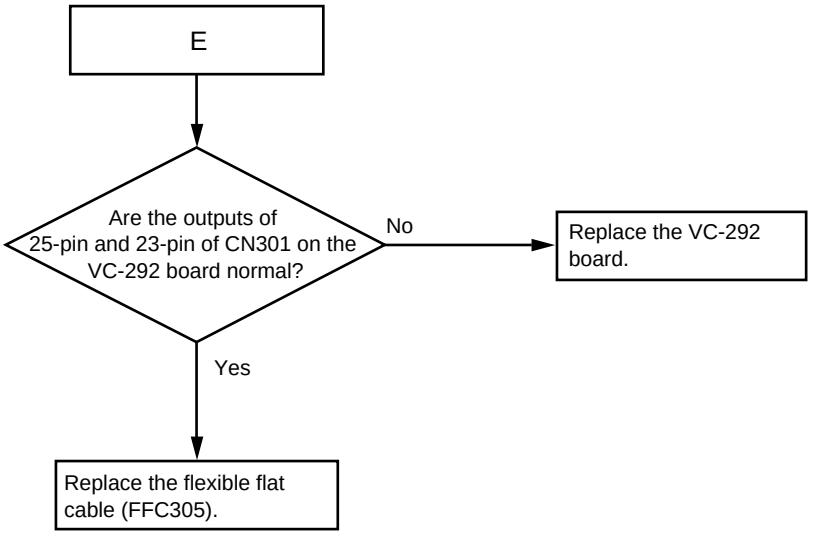

D
Is the output voltage of the D/D converter of CN902 on the MC-141 board normal?
No
Replace the MC-141 board.
Yes
Is the output voltage of CN301 on the VC-292 board normal?
No
Yes
Is the flexible flat cable (FFC305) correctly connected to CN301 (VC-292 board) and CN902 (MC-141 board)?
No
Yes
Replace the flexible flat cable (FFC305).
Connect the flexible flat cable (FFC305) correctly.
Do the lens and lens iris operate normally?
No
Yes
Replace the VC-292 board.
Replace the lens block.

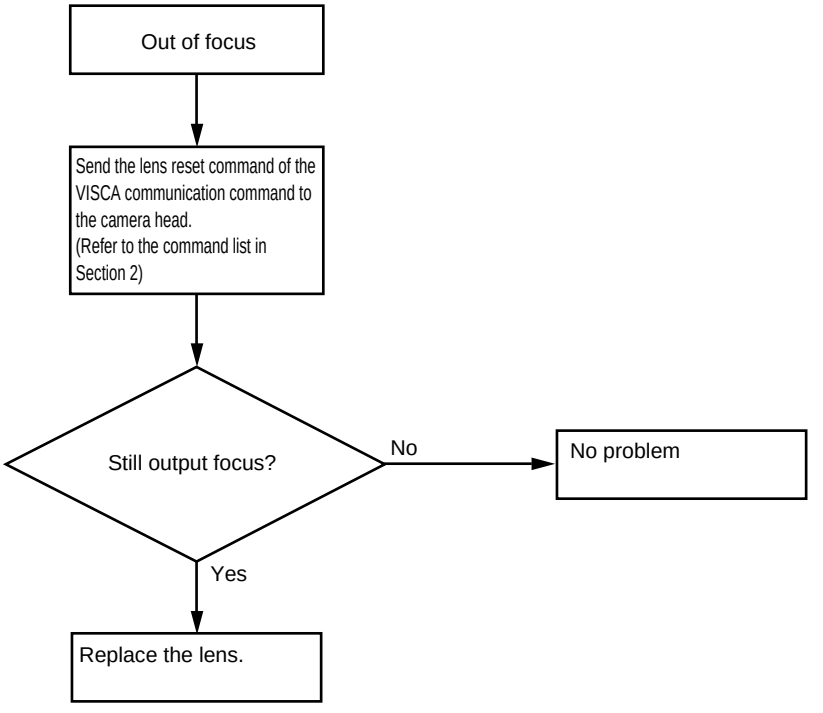
3-3. Initial operation of motor and TV picture are normal but PC image is NG (When the Power LED is lit)


C
Is the front Network indicator blinking?
No
Are the setting and connection of the network correct?
Yes
Is CN302 on the SY-303 board correctly soldered?
No
Yes
No
Yes
Set and connect the network correctly.
Replace the SY-303 board.
Is 22-pin of the flexible flat cable (FA1) correctly connected to CN402 (SY-303 board) and CN302 (VC-292 board)?
No
Yes
Connect 22-pin of the flexible flat cable (FA1) correctly.
Solder CN302 on the SY-303 correctly.
Is the signal of CN402 on the SY-303 board correct?
No
Yes
Is the signal of CN302 on the VC-292 board correct?
No
Yes
Replace the SY-303 board.
Replace the VC-292 board.
Replace the flexible flat cable (FA1).

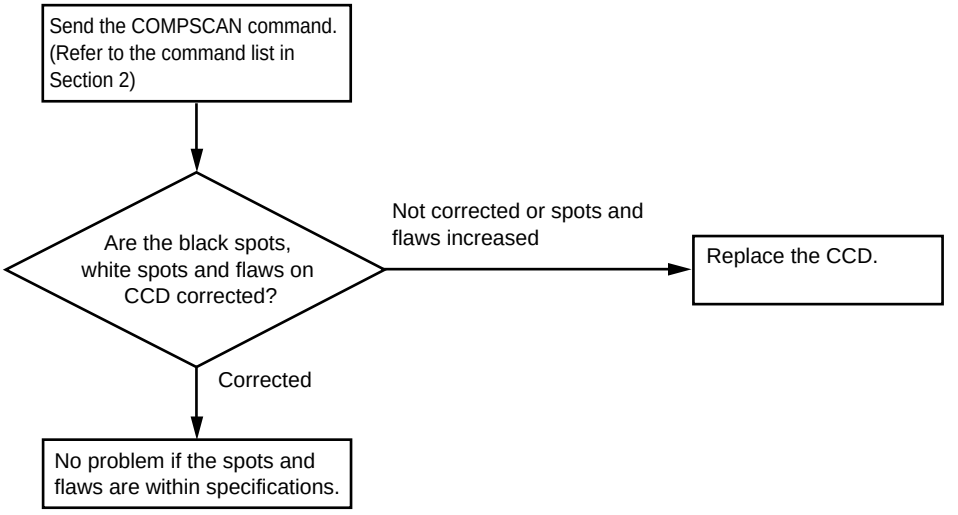
3-4. Initial operation of motor and PC image are normal but TV picture is NG (When the Power LED is lit)


Are CN303 and FB302 on the SY-303 board correctly soldered?
No
Solder the parts that are not correctly soldered.
Yes
Is 21-pin of the flexible flat cable (FA1) correctly connected to CN402 (SY-303 board) and CN302 (VC-292 board)?
No
Connect 21-pin of the flexible flat cable (FA1) correctly.
Yes
Is the video signal normally output from 20-pin of CN901 on the MC-141 board of the camera head?
Yes
No
Is the video signal normally input to 2-pin of CN404 on the SY-303 board?
No
Replace the flexible flat cable (FA1).
Yes
Are FB302 and CN303 on the SY-303 board correctly soldered?
No
Solder the parts that are not correctly soldered.
Yes
Replace the SY-303 board.
Is the output of 22-pin of IC902 on the – side of C909 on the MC-141 board of the camera head normal?
No
Yes
Are the outputs of 2-pin and 4-pin of CN902 on the MC-141 board of the camera head normal?
No
Go to E (page 4-7)
Yes
Replace the MC-141 board.

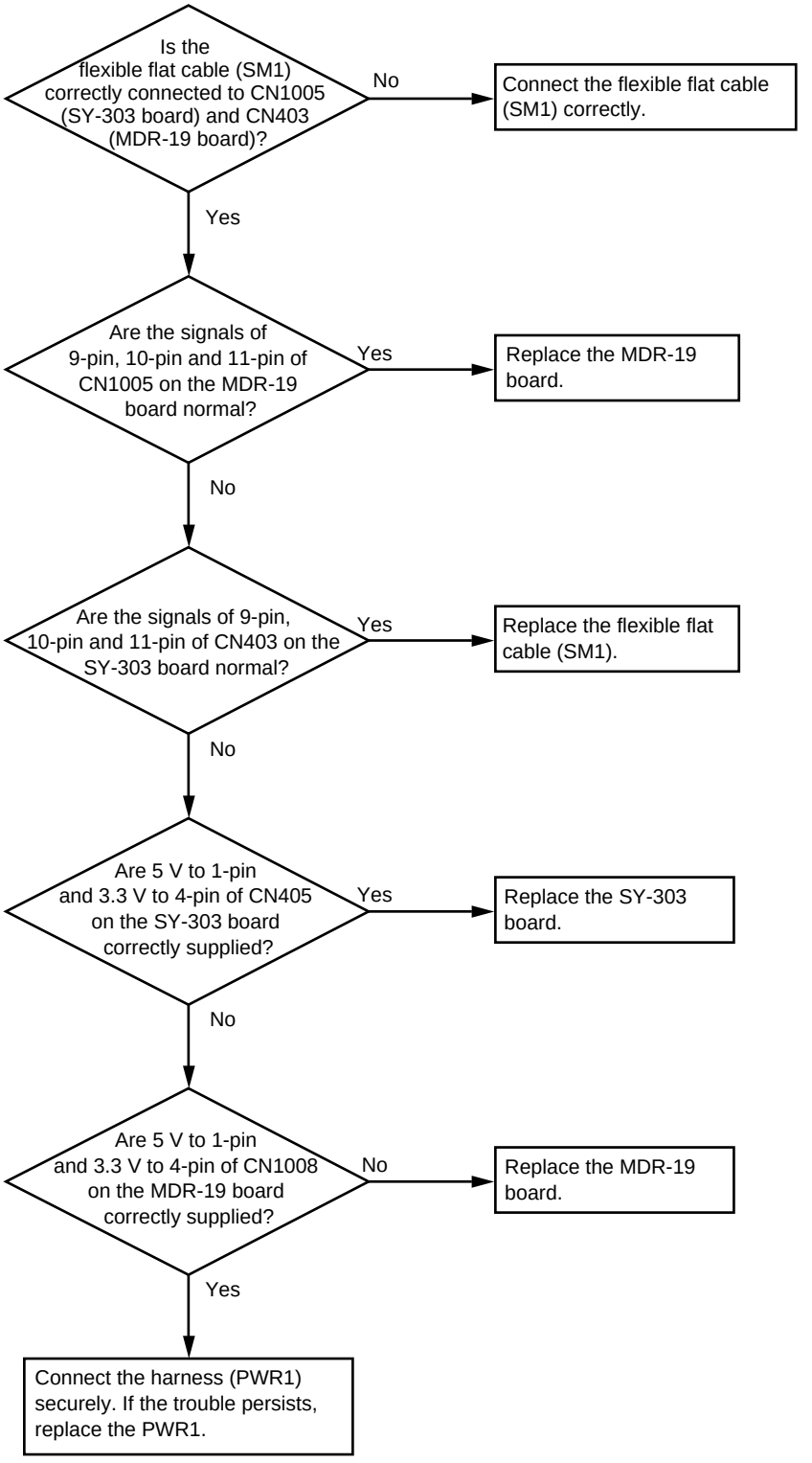

E
Are the outputs of 25-pin and 23-pin of CN301 on the VC-292 board normal?
No
Replace the VC-292 board.
Yes
Replace the flexible flat cable (FFC305).


Out of focus
Send the lens reset command of the VISCA communication command to the camera head.
(Refer to the command list in Section 2)
Still output focus?
No
No problem
Yes
Replace the lens.

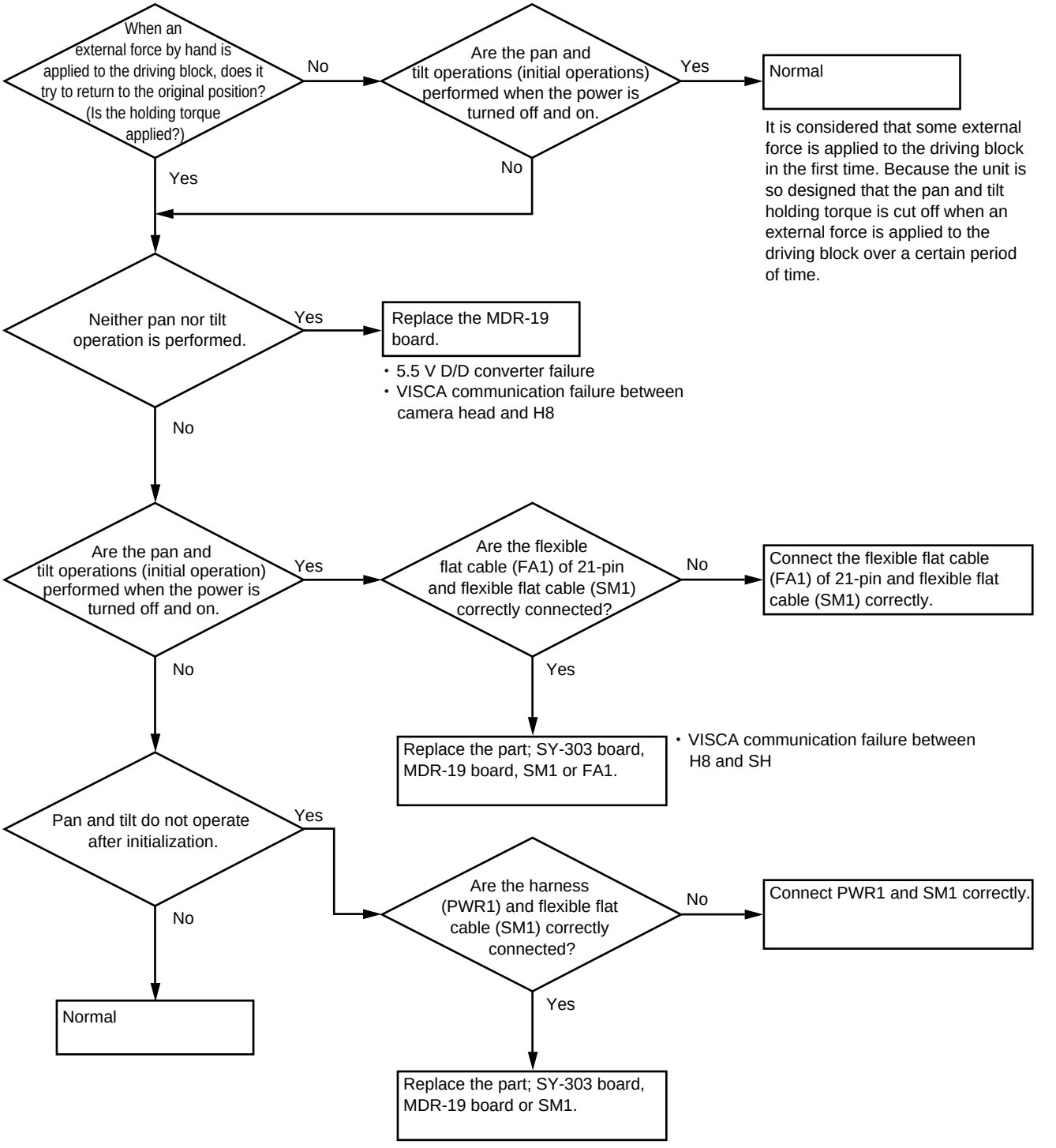
3-5. Black spots, white spots and flaws on CCD


Send the COMPSCAN command. (Refer to the command list in Section 2)
Are the black spots, white spots and flaws on CCD corrected?
Not corrected or spots and flaws increased
Replace the CCD.
Corrected
No problem if the spots and flaws are within specifications.

3-6. Power LED on front panel does not light

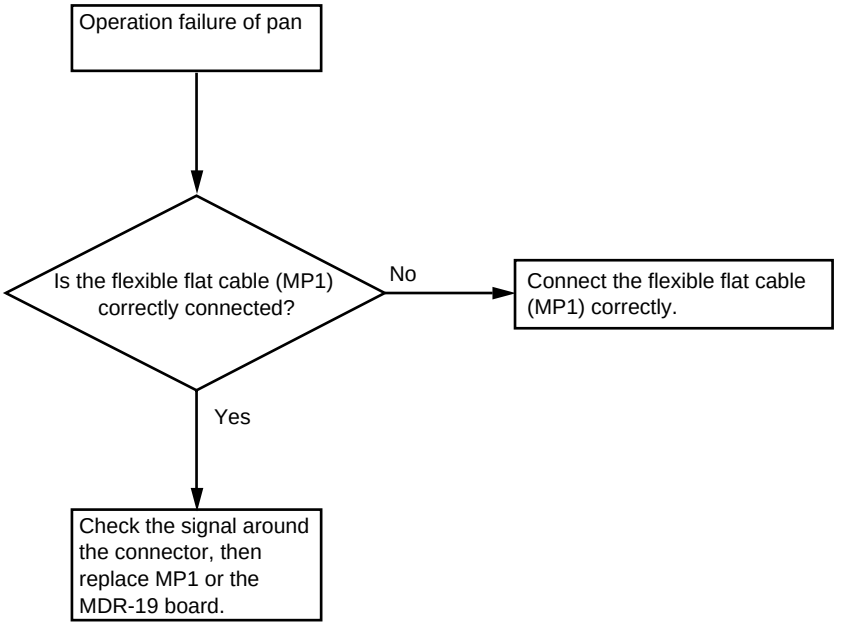

Is the flexible flat cable (SM1) correctly connected to CN1005 (SY-303 board) and CN403 (MDR-19 board)?
No
Connect the flexible flat cable (SM1) correctly.
Yes
Are the signals of 9-pin, 10-pin and 11-pin of CN1005 on the MDR-19 board normal?
Yes
Replace the MDR-19 board.
No
Are the signals of 9-pin, 10-pin and 11-pin of CN403 on the SY-303 board normal?
Yes
Replace the flexible flat cable (SM1).
No
Are 5 V to 1-pin and 3.3 V to 4-pin of CN405 on the SY-303 board correctly supplied?
Yes
Replace the SY-303 board.
No
Are 5 V to 1-pin and 3.3 V to 4-pin of CN1008 on the MDR-19 board correctly supplied?
No
Replace the MDR-19 board.
Yes
Connect the harness (PWR1) securely. If the trouble persists, replace the PWR1.

3-7. Operation failure of pan and tilt

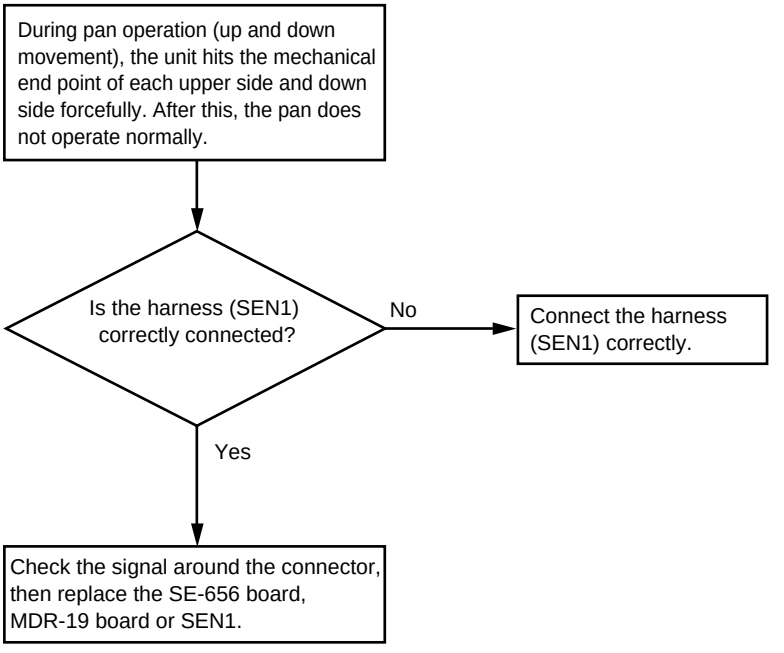

When an external force by hand is applied to the driving block, does it try to return to the original position? (Is the holding torque applied?)
No
Are the pan and tilt operations (initial operations) performed when the power is turned off and on.
Yes
Normal
It is considered that some external force is applied to the driving block in the first time. Because the unit is so designed that the pan and tilt holding torque is cut off when an external force is applied to the driving block over a certain period of time.
Yes
No
Neither pan nor tilt operation is performed.
Yes
Replace the MDR-19 board.
・5.5 V D/D converter failure
・VISCA communication failure between camera head and H8
No
Are the pan and tilt operations (initial operation) performed when the power is turned off and on.
Yes
Are the flexible flat cable (FA1) of 21-pin and flexible flat cable (SM1) correctly connected?
No
Connect the flexible flat cable (FA1) of 21-pin and flexible flat cable (SM1) correctly.
No
Yes
Replace the part; SY-303 board, MDR-19 board, SM1 or FA1.
・VISCA communication failure between H8 and SH
Pan and tilt do not operate after initialization.
Yes
Are the harness (PWR1) and flexible flat cable (SM1) correctly connected?
No
Connect PWR1 and SM1 correctly.
No
Normal
Yes
Replace the part; SY-303 board, MDR-19 board or SM1.

3-7-1. Operation failure of pan

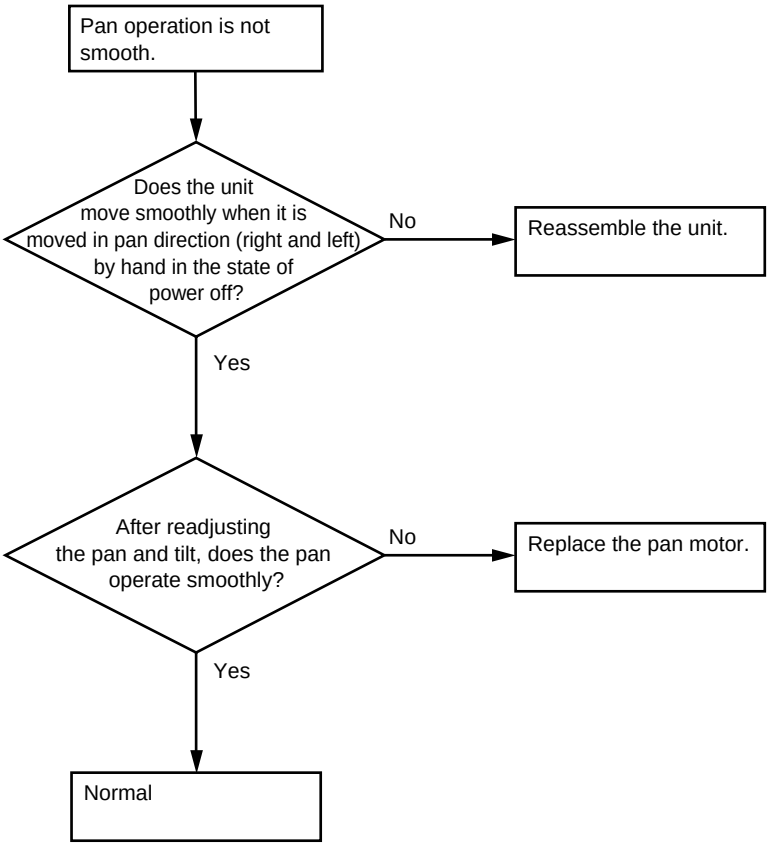
Trouble 1


Operation failure of pan
Is the flexible flat cable (MP1) correctly connected?
No
Connect the flexible flat cable (MP1) correctly.
Yes
Check the signal around the connector, then replace MP1 or the MDR-19 board.

Trouble 2

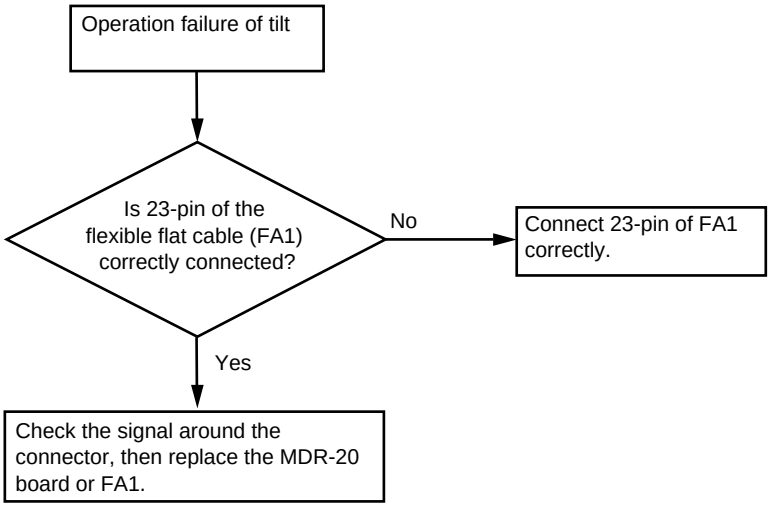

During pan operation (up and down movement), the unit hits the mechanical end point of each upper side and down side forcefully. After this, the pan does not operate normally.
Is the harness (SEN1) correctly connected?
No
Connect the harness (SEN1) correctly.
Yes
Check the signal around the connector, then replace the SE-656 board, MDR-19 board or SEN1.

Trouble 3

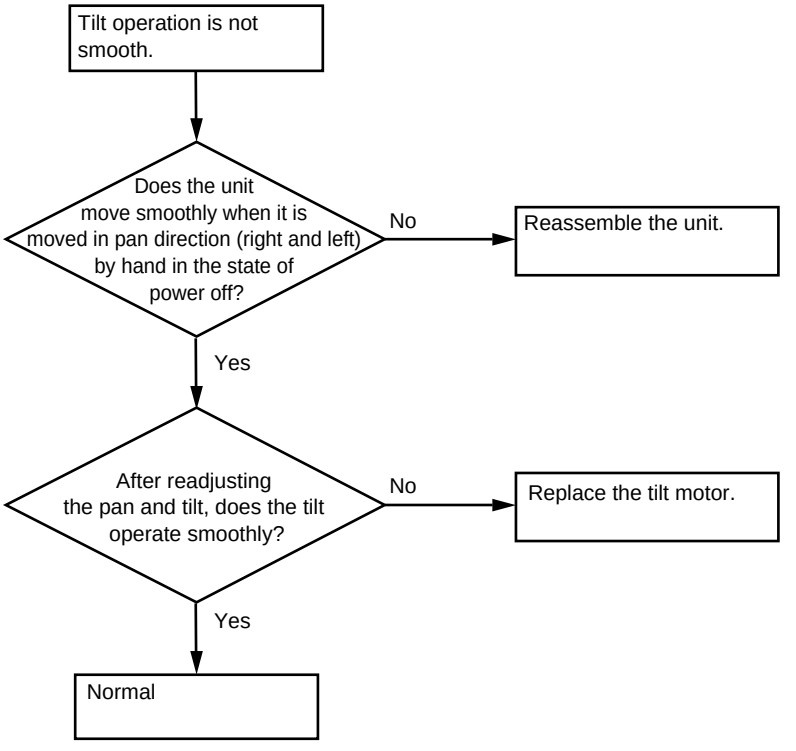

Pan operation is not smooth.
Does the unit move smoothly when it is moved in pan direction (right and left) by hand in the state of power off?
No
Reassemble the unit.
Yes
After readjusting the pan and tilt, does the pan operate smoothly?
No
Replace the pan motor.
Yes
Normal

3-7-2. Operation failure of tilt

Trouble 1


Operation failure of tilt
Is 23-pin of the flexible flat cable (FA1) correctly connected?
No
Connect 23-pin of FA1 correctly.
Yes
Check the signal around the connector, then replace the MDR-20 board or FA1.

Trouble 2


Tilt operation is not smooth.
Does the unit move smoothly when it is moved in pan direction (right and left) by hand in the state of power off?
No
Reassemble the unit.
Yes
After readjusting the pan and tilt, does the tilt operate smoothly?
No
Replace the tilt motor.
Yes
Normal

Section 4
Circuit Operation Description

4-1. SY-303 Board

4-1-1. Power Block

A power supply of 12 VDC is input from the DC jack of CN301 and sent to Q303 FET. In FET, the power supply is cut when the polarity of AC adaptor power is incorrect. The 12 VDC power passed through FET is sent from CN401 (pin 8) to the MDR-19 board and from CN404 (pin 21) to the camera module. Moreover, a power (of 3.3 VDC and 5 VDC) is supplied to each IC on the SY-303 board through CN405 (pin 12) on the MDR-19 board.

4-1-2. Analog Video Output Circuit

An analog video signal (VBS_OUT) is output through CN404 from the BNC connector (CN303).

4-1-3. Digital Image Data Processing Circuit

The digital image data processing circuit outputs the interlaced YUV411 digital image data (CAMY[7:0] and CAMC[3:0]) and control signal (CCLK) and inputs them from the camera module to MJPEG controller ASIC (IC103) through CN402. In IC103, an image format is converted into YCbCr422, and frame data is written in SDRAM (IC102). The conversion of interlacing to non-interlacing and the data conversion such as square latticing and resizing are performed to make a raster block conversion using a buffer (SRAM, IC101). The resultant data is sent to JPEG IC (IC104). Data is JPEG-compressed in JPEG IC (IC104.)
IC103 incorporates a DMA interface with IC007 HD6417615 (CPU). IC103 transfers the JPEG compression data to SDRAM (IC008 and IC010) by DMA (XSH_DREQ and XSH_DACK) and stores it at high speed. SH bus address decoding, external interrupt control or external wait control is provided. The control signals from each IC are input to IC103 and output to SH-CPU (IC007) after it is controlled. IC103 also has an internal dynamic detector.

4-1-4. Outline of SH-CPU Operation

HD6417615 (CPU, IC00) jmainly controls the access to MJPEG controller ASIC (IC103), system memory (SDRAM, IC008 and IC010), system ROM (flash memory, IC009 and IC011), a PC card controller (IC201), and a PHY chip (IC301). It also transfers data (JPEG image data) via a network or records data in a PC card. Moreover, HD6417615 performs the Visca communication control with a motor control block (H8 microcomputer on the MDR-19 board), the external interface (RS-232, RS-485, sensor input, and alarm output) control, the LED control, the clock generation (output of a 30 MHz clock to IC006), the interrupt control, the RTC (IC001) control, the software reset (XSRST) control.

4-1-5. System ROM

The system ROM (flash memory, IC009 and IC011) that has a capacity of 8 MB stores the data on the operation program of HD6417615 (IC007), Web contents, or system environmental information. The data is read and written by an SH data bus.
Since the system ROM is constituted by flash memory, it can upgrade software from a PC card through a network.

4-1-6. System Memory

The system memory (SDRAM, IC008 and IC010) that has a capacity of 32 MB stores an HD6417615 (IC007) operation program or Web contents from flash memory when the power is turned on.
Other areas are used to secure an area of approximately 8 MB as internal memory.
The system memory also temporarily stores the JPEG compression data transferred from IC103 at high speed using a DMA controller (IC007) or the saved image of an alarm buffer.

4-1-7. RTC Circuit

A dated watch function is realized using RTC (Real Time Clock) of IC001. The RTC is backed up by a secondary battery (BT001). The watch data of RTC can be read and written by HD6417615.

4-1-8. Reset Circuit

A power-on reset signal is output to the HD6417615 (IC007), system ROM (flash memory, IC009 and IC011), or PHY chip (IC301) using a reset circuit (IC002). The reset circuit also has a function for outputting a reset signal using manual reset switch S002 or for outputting a reset signal by the detection of a voltage decrease.

4-1-9. DIP Switch Block

DIP switch S001 is used to switch the operation mode of a system. When the power is on, HD6417615 (IC007) reads the state of the DIP switch so as to judge the operation mode. Usually, SW1 to SW4 are all set to “0”.
In the test mode, SW1 to SW3 are all set to “1”, and SW4 is set to “0”.

4-1-10. Clock Buffer

Clock buffer IC006 buffers a clock of 30 MHz from SH CPU (IC007) and supplies a stable clock to the system memory (SDRAM, IC008 and IC010) (SR1_CLK and SR2_CLK), PC card controller (IC201) (PC_CLK), or MJPEG controller ASIC (IC103) (SYCLK).

4-1-11. PC Card Control Block

A PC card is accessed through CN201 and a PC card slot using HD6417615 (IC007) and a PC card controller (IC201). The PC card corresponds to two slots. A PC card power supply of 3.3 VDC or 5 VDC can be used by PC card power selection circuit IC202.

4-1-12. Network Control Block

Network communication is controlled through HD6417615 (IC007), the PHY chip of IC301, and RJ45 (incorporated into a pulse transformer) of CN302. The communication between the HD6417615 (IC007) and PHY chip (IC301) is performed by MII based on the IEEE802.3u standard. The transfer rate (10Base-T/100Base-TX) or communication mode (full duplex/half duplex) can also be switched.

4-1-13. Reset Switch

The reset switch (S301) is used to return the system to the factory setting.
To return to the factory setting, turn on the power while pressing and holding S301.

4-1-14. Sensor Input Circuit

The sensor input circuit inputs the external sensor signal from the terminal board connector of CN304 using three photocouplers (PH301 to PH303) (three ports). The output signals (EXINT[02:00]) from the photocouplers are input to the interrupt controller of MJPEG control ASIC (IC103) and recognized as an interrupt signal (XSHINT[2:0]) of HD6417615 (IC007).

4-1-15. Alarm Output Block

The alarm output circuit inputs the relay control signals (RELAY0 and RELAY1), sent from HD6417615 (IC007), to two relays (RY301 and RY302) and turns on and off the switch inside the relays.
The relay output signal can control the external device by connecting with an external device from the terminal board connector of CN304.

4-1-16. External RS-232/RS-485 Communication Block

The external RS-232/RS-485 communication block communicates with the outside through an RS-232 driver circuit (IC303) using communication control signals (EXT_TXD and EXT_RXD) from HD6417615 (IC007) by RS-232C. It also communicates with the outside using identical communication control signals by RS-485. This communication block can communicate in serial with the external equipment when it is connected with external equipment from the terminal board connector of CN304. Since RS-232 and RS-485 share the communication port of HD6417615 (IC007), they are switched using the select signal (IF_SEL) from HD6417615 (IC007).

4-1-17. MDR-19 Board Interface Connector

The interface connector between CN403 (pin 12) and MDR-19 board is used to connect the Visca communication signal between HD6417615 and an H8 microcomputer (IC1005), the Visca communication signal between a camera module and H8 microcomputer (IC1005) via CN404, the control signal of LEDs (D1004 and D1005), or the power of a secondary battery.

4-1-18. Camera Module Interface Connector

CN402 (pin 22) is used to connect the digital image data and control signal from a camera module. CN404 (pin 21) is used to connect the power supply (12 VDC) to a camera module, the Visca communication signal between a camera module and H8 microcomputer (IC1005), or the analog video signal from a camera module.

4-2. MDR-19 Board

4-2-1. Power Block

The power block supplies a power of 12 VDC from the SY-303 board through CN1001 (pin 8) and inputs it to three switching regulators (IC1001 to IC1003). The voltage output from IC1001 is 5 VDC. The output voltage is used for an MR amplification-related block and backup power switch. It is also sent through CN1008 (pin 12) to the SY-303 board. The voltage output from IC1002 is 3.3 VDC. The output voltage is used for the peripheral block of a microcomputer. It is also sent through CN1008 (pin 12) to the SY-303 board. The voltage output from IC1003 is 5.5 VDC. The output voltage is used for a motor driving system.

4-2-2. Outline of Microcomputer Operation

A 16-bit microcomputer (H8, IC1005) performs the pan/tilt motor control, the Visca communication with a camera module, the Visca communication with HD6417615 (IC007), and the data read and write of EEPROM (IC1006). A pan motor inputs a hole element signal (PAN_HOLE_H[3:1]) for mutual switching and inputs an MR element signal (PAN_MRFG[2:1]) for position detection. The pan motor also outputs a PWM signal (PAN_PWM), polarity switching signals (PAN_POL_U, V, and W), and phase selection signals (PAN_PHASE_U, V, and W) to control a motor. Like the pan motor, a tilt motor also inputs a hole element signal (TILT_HOLE_H[3:1]) for phase switching and inputs an MR element signal (TILT_MRFG[2:1]) for position detection. The tilt motor outputs a PWM signal (TILT_PWM), polarity switching signals (TILT_POL_U, V, and W), and phase selection signals (TILT_PHASE_U, V, and W) to control a motor. For the data of EEPROM (IC1006), the position information of each motor is mainly stored in parallel.

4-2-3. Pan motor Control Circuit

The PWM pulse (PAN_PWM) output from a microcomputer (IC1005) is input to a polarity selector (IC1008) and inverter (IC1015). The PWM pulse inverted using an inverter (IC1015) is also input to IC1008. In the polarity selector (IC1008), the polarity of a coil is determined by select signals (PAN_POL_U, V, and W). This output signal is input to a phase selector (IC1007). In IC1009, the phase used is selected by select signals (PAN_PHASE_U, V, and W). This output signal and the PAN_PHASE_U, V, and W signals are input to a motor driver circuit (IC1009, IC1010, and IC1016) to control a motor.

4-2-4. MR Amplification Circuit

The MR sensor output signal from a pan motor is amplified using an operational amplifier (IC1012) because it is very small in amount and sent to a microcomputer (IC1005) through a buffer (IC1011).

4-2-5. Pan Position Detector Circuit

When the pan position reaches the end point, a photo-interrupter signal is input from CN1004 (pin 4) and sent to a microcomputer.

4-2-6. Visca Communication with Camera Module

A microcomputer (IC1005) internally communicates with the microcomputer of a camera module and controls a camera. A communication signal is passed through the SY-303 board via interface connector CN1005 (pin 12) on the SY-303 board and sent to the camera module.

4-2-7. Visca Communication with HD6417615

A microcomputer (IC1005) internally communicates with HD6417615 (IC007) and exchanges pan/tilt control information and camera control information with HD6417615. A communication signal is sent to interface connector CN1005 (pin 12) on the SY-303 board.

4-2-8. Microcomputer Backup Circuit

The signals that were power failure-detected using a backup switching circuit (IC1104) are input to a microcomputer (IC1005). The microcomputer (IC1104) detects the state of these signals and shifts to the sleep mode. The backup switching circuit (IC1104) switches the normal power to the battery power simultaneously when it detects a power failure. Moreover, the backup switching circuit outputs a reset signal to reset a microcomputer (IC1005) when the voltage of a battery decreases.

4-2-9. LED Circuit

The LED control signal from interface connector CN1005 (pin 12) on the SY-303 board is input to the LED buffer (IC1013) so as to turn on and off the LAN LED (D1004) and POWER LED (D1005). Usually, the LAN LED (D1004) indicates the Ethernet state, and the POWER LED (D1005) indicates the power supply state.

4-3. MDR-19 Board

4-3-1. Tilt Motor Control Circuit

The PWM pulse (TILT_PWM) that is output from the microcomputer (IC1005) on the MDR-19 board through connectors (CN1007 to CN1101 (pin 23)) is input to a polarity selector (IC1102) and inverter (IC1108). The PWM pulse inverted using an inverter (IC1108) is also input to IC1102. In the polarity selector (IC1102), the polarity of a coil is determined by select signals (TILT_POL_U, V, and W). This output signal is input to a phase selector (IC1101). In IC1101, the phase used is selected by select signals (TILT_PHASE_U, V, and W). This output signal and the TILT_PHASE_U, V, and W signals are input to a motor driver circuit (IC1103, IC1104, and IC1109) to control a motor.

4-3-2. Tilt Position Detector Circuit

When the tilt position reaches the end point, a signal is output from photo-interrupters (PH1101 and PH1102) and sent through connectors (CN1101 to CN1007) to the microcomputer (IC1005) on the MDR-19 board.

4-4. SE-656 Board

4-4-1. Pan Position Detector Circuit

When the pan position reaches the end point, a signal is output from photo-interrupters (PH1201 and PH1202) and sent through connectors (CN1201 to CN1004 (pin 4)) to the microcomputer (IC1005) on the MDR-19 board.

Section 5
Semiconductor Pin Assignments

The following describes the semiconductor types used in this unit.
For semiconductors marked with page numbers in the index, refer to the corresponding pages in this section. However, in some cases incompatible types are also listed, therefore, when a part is to be replaced, also refer to the Spare Parts section.
In addition, for semiconductors with ID Nos., refer to the separate CD-ROM titled “Semiconductor Pin Assignments” (Sony Part No. 9-968-546-xx) that allows searching for parts by semiconductor type or ID No.
The semiconductors in the manual or on the CD-ROM are listed by equivalent types. Thus the external view or the index mark indication may differ from the actual type.
Pin assignments and block diagrams are based on the IC manufacturer’s data book.

本機に使用されている半導体型名の一覧を下記に示します。
索引中，ページが記載されている半導体は，本章の該当ページを参照してください。ただし，互換性のない型名を併記している場合がありますので，部品を交換するときは，Spare Partsの章を参照してください。
また，ID番号が記載されている半導体は，別途発行の “Semiconductor Pin Assignments” CD−ROM版 (ソニー部品番号：9−968−546−xx)を参照してください。
半導体型名またはID番号から検索ができます。
マニュアルまたはCD−ROMに掲載されている半導体は，それぞれの機能を等価的に表わしたものです。
外観やインデックスマークの表示方法が実物と異なる場合があります。
ピン配置およびブロック図はICメーカーのデータブックに従いました。

DIODE — **Page or ID No.**

MA111-(K8).S0 ..... DC008-01
MA111-TX DC008-01
MA728-(K8).S0 ..... DC008-01
MBRS340T3 ..... DC013-01

RD13SB-T1 ..... DC008-04
RD30SB-T1 ..... DC008-04
RD8.2SB-T1 ..... DC008-04

LED — **Page or ID No.**

SML-020MDT-T86 ..... LC009-02
SML-210MT-T86 ..... LC001-01
SML-210MTT86 ..... LC001-01

TRANSISTOR — **Page or ID No.**

DTA123JE TC001-04
DTA123JE-TL TC001-04
DTC144EE TC001-03
DTC144EE-TL TC001-03

TPC8108(TE12L) TC013-07

IC — **Page or ID No.**

AK6420AF-E2 ..... AK6420HF

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CY2305SC-1HT CY2305SC-1HT
CY7C1021BV33-15ZCT IDT71V016S20Y-TL

DS1302Z-TE2 ..... DS1302Z

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HY57V643220CT-7TR MB811643242A-100FN

LM2596SX-3.3 ..... LM2596SX
LM2596SX-5.0 ..... LM2596SX
LM2596SX-ADJ LM2596SX

MAX3221CAE MAX3221CAE
MAX3221CAE-TE2 ..... MAX3221CAE
MAX3483CSA-TG068 5-5
MB3771PF-ER MB3771DIP
MD36053X-30 ..... MD36053X-30
MPC17A29ZVMEL MPC17A29ZVMEL
MR-SHPC-02V1 5-8
MT48LC8M16A2TG-75-Y95W HY57V281620AT-P

NJM2904V(TE2) RC4558
NJU7016R RC4558

S-817A36ANB-CUZ-T2 ..... S-817A36ANB-CUZ-T2
S-8423BBFS-T2 ..... S-8423YFS-T2
SN74LVC14APWR TC74HC14P

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IC	Page or ID No.
TA75S01F	TA75S01F
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TC74LCX04FT(EL)	TC74HC04P
TC74VHC32FT(EL)	TC74HC32P
TC7S04FU(TE85R)	TC7S04F
TC7S04FU-TE85R	TC7S04F
TC7S14FU(TE85R)	TC7S14FU
TC7SH04FU	TC7S04F
TC7SH04FU-TE85R	TC7S04F
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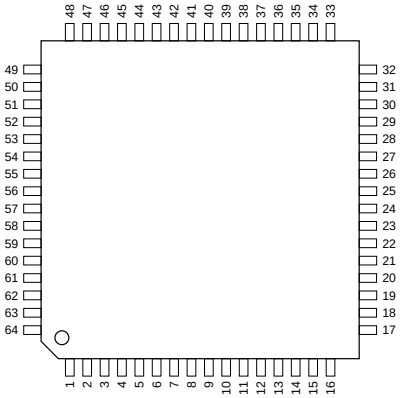
UPD65454GL-231-NMU	5-10

OTHERS	Page or ID No.
GP1S092HCPI	MR010-08
TLP181(GR-TPR)	MC004-02

IC

BCM5221A4KPT (BROADCOM)

10/100 BASE-TX/FX TRANSCEIVER
—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	—	D.VCC	23	I	RDAC	45	—	D.GND
2	—	D.VCC	24	—	A.GND	46	—	D.VCC
3	—	D.VCC	25	I	RD–	47	O	RXD1
4	I	REF CLK	26	I	RD+	48	O	RXD0
5	O	XTALO	27	—	A.VCC	49	O	RXDV
6	I	XTALI	28	—	A.VCC	50	O	RXC
7	—	D.GND	29	—	A.GND	51	O	RXER
8	—	VCC/NC	30	O	TD–	52	I	TXER
9	I	RESET	31	O	TD+	53	O	TXC
10	I/O	PHYAD0/FDX LED	32	—	A.GND	54	—	D.GND
11	I/O	PHYAD1/COL LED	33	I/O	RCVLED/ACTLED/MDIX DIS/TDO	55	—	D.VCC
12	I/O	PHYAD2/ACT LED	34	O	XMTLED/INTR/FDXLED	56	I	TXEN
13	I/O	PHYAD3/PAUSE	35	I/O	LNKLED/MEDIA CONV/TDI	57	I	TXD0
14	I/O	PHYAD4	36	I/O	SPDLED/ADV PAUSE/TMS	58	I	TXD1
15	I	TESTEN	37	I	F100	59	I	TXD2
16	I	LOW PWR	38	I	ANEN/TRST	60	I	TXD3
17	O	ENERGY DET	39	I	FDX	61	O	COL
18	I	MII EN	40	—	D.GND	62	O	CRS
19	I	SD–	41	I/O	MDIO	63	—	D.GND
20	—	A.VCC	42	I	MDC	64	I	JTAG EN
21	I	SD+	43	O	RXD3			
22	—	A.VCC	44	O	RXD2			

INPUTS

ACTLED	: INTERRUPT OR FDXLED MODE IN ENABLE
ANEN	: AUTO NEGOTIATION ENABLE
F100	: FORCE 100BASE-X CONTROL
FDX	: FULL DUPLEX MODE
FDXLED	: FDXLED MODE IN ENABLE
INTR	: INTERRUPT
JTAG EN	: JTAG ENABLE
LOW PWR	: LOW POWER MODE ENABLE
MDC	: MANAGEMENT DATA CLOCK
MDIX DIS	: DISABLES MDI CABLE CROSS OVER DETECTION
MII EN	: MII ENABLE
RD+, RD–	: RECEIVE PAIR
RDAC	: DAC BIAS RESISTOR
REF CLK	: MII/RMII MODE 25/50 MHz REFERENCE CLOCK
RESET	: RESET
SD+, SD–	: 100BASE-FX SIGNAL DETECT
TESTEN	: TEST MODE ENABLE
TXD3 - TXD0	: MII TRANSMIT DATA
TXEN	: MII TRANSMIT ENABLE
TXER	: MII TRANSMIT ERROR
XTALI	: CRYSTAL INPUT

OUTPUTS

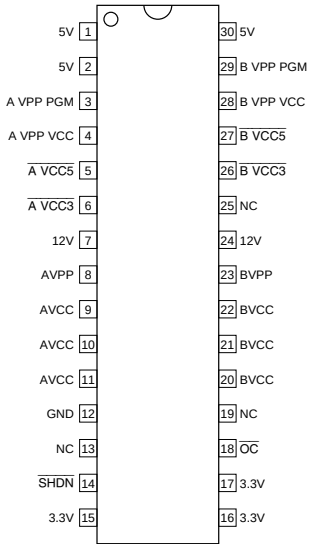
ACT	: ACTIVITY LED
COL	: COLLISION DETECT
COL LED	: COLLISION DETECT LED
CRS	: MII CARRIER SENSE
ENERGY DET	: ENERGY DETECTION
FDX LED	: FULL DUPLEX LED
PAUSE	: PAUSE
RCVLED	: RECEIVED ACTIVITY LED
RXC	: MII RECEIVE CLOCK
RXD3 - RXD0	: MII RECEIVE DATA
RXDV	: MII RECEIVE DATA VALID
RXER	: MII RECEIVE ERROR DETECTED
TD+, TD–	: TRANSMIT PAIR
TDO	: TEST DATA OUTPUT
TXC	: TRANSMIT CLOCK
XMTLED	: TRANSMIT ACTIVITY LED
XTALO	: CRYSTAL OUTPUT

INPUTS/OUTPUTS

ACT LED	: ACTIVITY LED
COL LED	: COLLISION DETECT LED
FDX LED	: FULL DUPLEX LED
LNKLED	: LINK INTEGRITY LED
MDIO	: MANAGEMENT DATA I/O
PAUSE	: PAUSE BIT
PHYAD0 - PHYAD4	: PHY ADDRESS SELECT
RCVLED	: RECEIVE ACTIVITY LED
SPDLED	: 100BASE-X LED

TPS2205IDBR (TI)

PC CARD POWER INTERFACE SWITCH
—TOP VIEW—

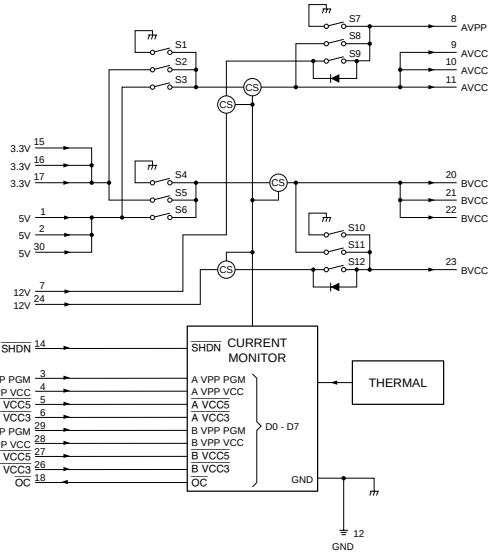


INPUTS

3.3V, 5V	: PC CARD VCC
12V	: PC CARD VPP
A VCC3, A VCC5	: AVCC VOLTAGE CONTROL
A VPP PGM, AVPP VCC	: AVPP VOLTAGE CONTROL
B VCC3, B VCC5	: BVCC VOLTAGE CONTROL
B VPP PGM, B VPP VCC	: BVPP VOLTAGE CONTROL
SHDN	: SHUTDOWN

OUTPUTS

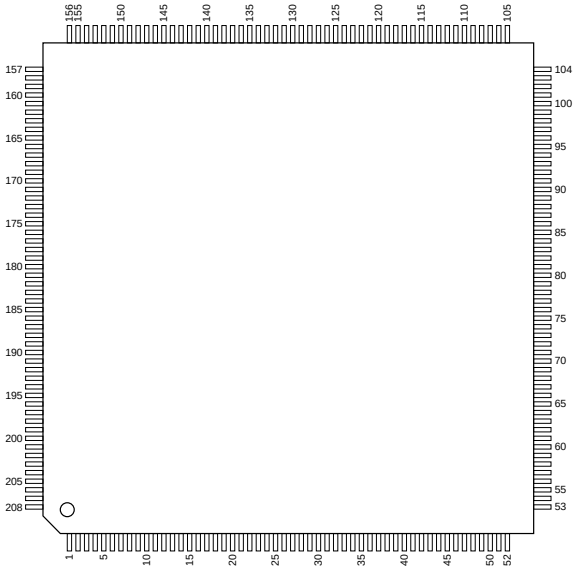
AVCC, AVPP, BVCC, BVPP	: SWITCHED POWER OUTPUT
OC	: OVER CURRENT



HD6417615ARF (HITACHI)

32-BIT RISC CPU

—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I	IRL3	53	I/O	D14	105	O	A20	157	—	GND
2	I	IRL2	54	I/O	D15	106	O	A21	158	I/O	PB10/SRXD2/TIOCA1
3	I	IRL1	55	I/O	D16	107	O	A22	159	I/O	PB9/STCK2/TIOCB1/TCLKC
4	I	IRL0	56	I/O	D17	108	O	A23	160	I/O	PB8/STS2/TIOCA2
5	I	NMI	57	I/O	D18	109	—	Vcc	161	I/O	PB7/STXD2/TIOCB2/TCLKD
6	I	ASEMODE	58	—	Vcc	110	—	Vcc	162	I/O	PB6/SRCK1/SCK2
7	—	GND	59	I/O	D19	111	O	A24	163	I/O	PB5/SRS1/RXD2
8	I	RES	60	—	GND	112	—	GND	164	I/O	PB4/SRXD1/TXD2
9	—	GND	61	—	GND	113	—	GND	165	I/O	PB3/STCK1/TIOCA0
10	I	CAP2	62	I/O	D20	114	—	GND	166	I/O	PB2/STS1/TIOCB0
11	I	CAP1	63	I/O	D21	115	I	WAIT	167	—	Vcc
12	—	Vcc	64	I/O	D22	116	—	Vcc	168	I/O	PB1/STXD1/TIOCD0/TCLKA
13	I	MD4	65	I/O	D23	117	O	RAS	169	—	GND
14	I	MD3	66	—	Vcc	118	O	CAS/OE	170	I/O	PB0/TIOCD0/TCLKB/WOL
15	I	MD2	67	—	Vcc	119	O	DQMUU/WE3	171	I/O	PA13/SRCK0
16	I	MD1	68	I/O	D24	120	O	DQMUL/WE2	172	I/O	PA12/SRS0
17	I	MD0	69	—	GND	121	O	DQMLU/WE1	173	I/O	PA11/SRXD0
18	—	Vcc	70	I/O	D25	122	O	DQMLL/WE0	174	I/O	PA10/STCK0
19	I	EXTAL	71	I/O	D26	123	O	CAS3	175	I/O	PA9/STS0
20	—	GND	72	I/O	D27	124	O	CAS2	176	I/O	PA8/STXD0
21	O	XTAL	73	I/O	D28	125	O	CAS1	177	O	WDTOVF/PA7
22	—	Vcc	74	I/O	D29	126	O	CAS0	178	I/O	PA6/FTCI
23	I/O	CKIO	75	I/O	D30	127	O	CKE	179	—	Vcc
24	I	CKPREQ/CKM	76	—	Vcc	128	O	RD	180	I	PA5/FTI
25	O	CKPACK	77	I/O	D31	129	O	REFOUT	181	—	GND
26	—	GND	78	—	GND	130	—	GND	182	I/O	PA4/FTOA
27	O	IVECF	79	—	GND	131	O	BS	183	O	CKPO/FTOB
28	O	TDO	80	O	A0	132	—	Vcc	184	I	PA2/LNKSTA
29	I	TDI	81	—	Vcc	133	O	RD/WR	185	I/O	PA1/EXOUT
30	I	TCK	82	O	A1	134	O	CS0	186	I/O	PA0/EXPOSE
31	I	TMS	83	O	A2	135	O	CS1	187	I	RXER
32	I	TRST	84	O	A3	136	O	CS2	188	I	RXDV
33	—	Vcc	85	O	A4	137	O	CS3	189	I	COL
34	I/O	D0	86	O	A5	138	O	CS4	190	I	CRS
35	—	GND	87	O	A6	139	I	BUSHIZ	191	—	GND
36	I/O	D1	88	O	A7	140	O	BH	192	I	RXCLK
37	I/O	D2	89	—	Vcc	141	I	DREQ1	193	—	Vcc
38	I/O	D3	90	O	A8	142	I	DREQ0	194	I	ERXD0
39	I/O	D4	91	—	GND	143	O	DACK1	195	I	ERXD1
40	I/O	D5	92	O	A9	144	O	DACK0	196	I	ERXD2
41	I/O	D6	93	O	A10	145	O	BRLS	197	I	ERXD3
42	—	Vcc	94	O	A11	146	—	Vcc	198	I/O	MDIO
43	I/O	D7	95	O	A12	147	—	Vcc	199	O	MDC
44	I/O	D8	96	O	A13	148	O	BGR	200	—	Vcc
45	—	GND	97	O	A14	149	—	GND	201	I	TXCLK
46	I/O	D9	98	O	A15	150	—	GND	202	—	GND
47	I/O	D10	99	—	Vcc	151	I/O	PB15/SCK1	203	O	TXEN
48	I/O	D11	100	O	A16	152	I/O	PB14/RXD1	204	O	ETXD0
49	I/O	D12	101	—	GND	153	I/O	PB13/TXD1	205	O	ETXD1
50	—	Vcc	102	O	A17	154	I/O	PB12/SRCK2/RTS/STATS1	206	O	ETXD2
51	I/O	D13	103	O	A18	155	—	Vcc	207	O	ETXD3
52	—	GND	104	O	A19	156	I/O	PB11/SRS2/CTS/STATS0	208	O	TXER

INPUTS

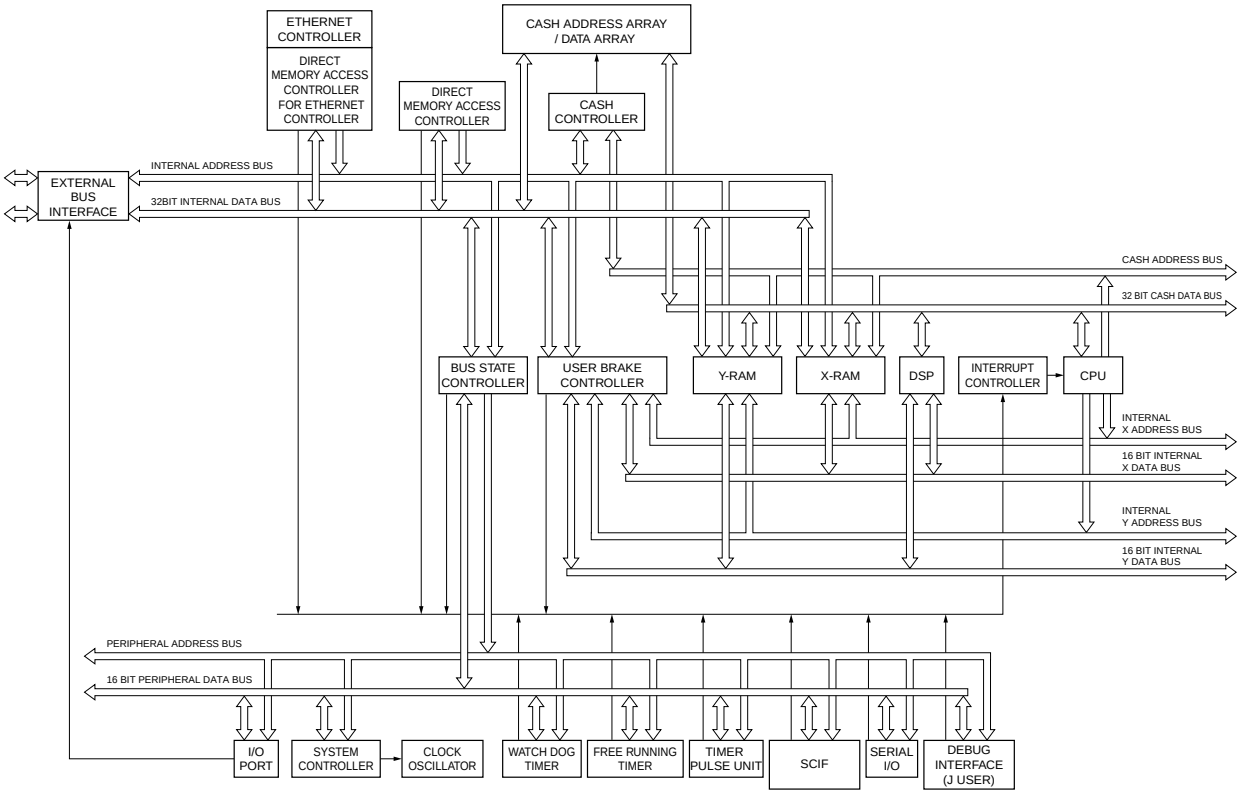
ASEMODE	: ASE MODE INPUT
BRLS	: BUS RELEASE
BUSHIZ	: BUS HIGH IMPEDANCE
CKPREQ/CKM	: CLOCK PAUSE REQUEST
COL	: COLLISION
CRS	: CARRIER SENSE
CTS	: TRANSMIT PERMISSION
DREQ0, DAEQ1	: DMAC REQUEST
ERXD0 - ERXD3	: RECEIVE DATA
EXTAL	: CRYSTAL OSCILLATOR TERMINAL
FTCI	: COUNTER CLOCK
FTI	: INPUT CAPTURE
IRL0 - IRL3	: INTERRUPT REQUEST
LNKSTA	: LINK STATUS
MD0 - MD4	: MODE SET
NMI	: NONMASKABLE INTERRUPT
PLLCAP1, PLLCAM2	: PLL CAPACITANCE CONNECTION
RES	: RESET
RXCLK	: RECEIVE CLOCK
RXD1, RXD2	: RECEIVE DATA
RXDV	: RECEIVE DATA ENABLE
RXER	: RECEIVE ERROR
SRCK0 - SRCK2	: SERIAL RECEIVE CLOCK
SRS0 - SRS2	: SERIAL RECEIVE SYNCHRONIZATION
SRXD0 - SRXD2	: SERIAL RECEIVE DATA
STCK0 - STCK2	: SERIAL TRANSMIT CLOCK
TCK	: TEST CLOCK
TCLKA, TCLKB, TCLKC, TCLKD	: TPU TIMER CLOCK
TDI	: TEST DATA INPUT
TMS	: TEST MODE SELECT
TRST	: TEST RESET
TXCLK	: TRANSMIT CLOCK
WAIT	: WAIT

OUTPUTS

A0 - A24	: ADDRESS BUS
BGR	: BUS GRANT
BH	: BURST HINT
BS	: PASS CYCLE START
CAS	: COLUMN ADDRESS STROBE FOR SDRAM
CAS0 - CAS3	: COLUMN ADDRESS STROBE FOR DRAM
CKE	: CLOCK ENABLE
CKPACK	: CLOCK PAUSE ACKNOWLEDGE
CKPO	: CLOCK
CS0 - CS4	: CHIP SELECT
DACK0, DACK1	: DMAC ACKNOWLEDGE
DQMLL/WE0	: LSB BYTE ACCESS
DQMLU/WE1	: THIRD BYTE ACCESS
DQMUL/WE2	: SECOND BYTE ACCESS
DQMUU/WE3	: MSB BYTE ACCESS
ETXD0 - ETXD3	: TRANSMIT DATA
EXOUT	: GENERAL PURPOSE EXTERNAL OUTPUT
FTOA, FTOB	: OUTPUT COMPARE
IVECF	: INTERRUPT VECTOR FETCH CYCLE
MDC	: MANAGEMENT DATA CLOCK
OE	: OUTPUT ENABLE
RAS	: LOW ADDRESS STROBE
RD	: READ
RD/WR	: READ/WRITE
REF OUT	: REFRESH OUT
RTS	: TRANSMIT REQUEST
STATS0, STATS1	: STATUS (CPU, DMAC, E-DMAC)
STXD0 - STXD2	: SERIAL TRANSMIT DATA
TDO	: TEST DATA OUTPUT
TXD1, TXD2	: TRANSMIT DATA
TXEN	: TRANSMIT ENABLE
TXER	: TRANSMIT ERROR
WDTOVF	: WATCH DOG TIMER OVERFLOW
WOL	: WAKE ON LAN
XTAL	: CRYSTAL OSCILLATOR TERMINAL

INPUTS/OUTPUTS

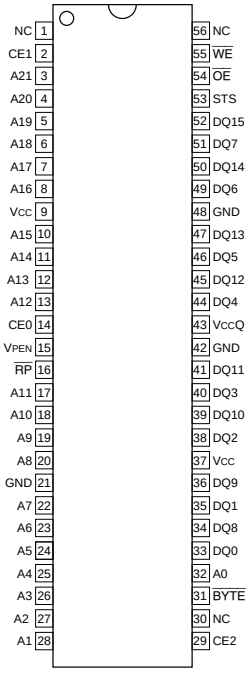
CKIO	: SYSTEM CLOCK
D0 - D31	: DATA BUS
MDIO	: MANAGEMENT DATA I/O
PA0 - PA13	: GENERAL PORT
PB0 - PB15	: GENERAL PORT
SCK1, SCK2	: SERIAL CLOCK
STS0 - STS2	: SERIAL TRANSMIT SYNCHRONIZATION
TIOCA0 - TIOCA2, TIOCB0 - TIOCB2, TIOCC0, TIOCD0	: TPU INPUT CAPTURE/OUTPUT COMPARE



E28F320J3A-110 (INTEL)

32M-BIT FLASH MEMORY

—TOP VIEW—



INPUTS

A0	:	BYTE SELECT ADDRESS
A1 - A21	:	ADDRESS
BYTE	:	BYTE ENABLE
CE0 - CE2	:	CHIP ENABLE
OE	:	OUTPUT ENABLE
RP	:	RESET/POWER-DOWN
VCCQ	:	OUTPUT BUFFER POWER SUPPLY
VPEN	:	ERASE/PROGRAM /BLOCK LOCK ENABLE
WE	:	WRITE ENABLE

OUTPUT

STS	:	STATUS

INPUTS/OUTPUTS

DQ0 - DQ7	:	LOW-BYTE DATA BUS
DQ8 - DQ15	:	HIGH-BYTE DATA BUS

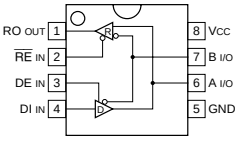
OTHER

NC	:	NO CONNECTION

MAX3483CSA-TG068 (MAXIM)

RS-485/422 TRANSCEIVER

—TOP VIEW—



INPUTS

DE	:	DRIVER ENABLE
DI	:	DRIVER
RE	:	RECEIVER ENABLE

OUTPUT

RO	:	RECEIVER

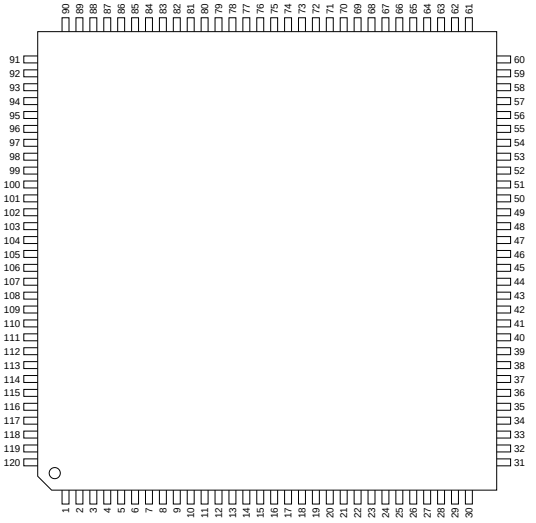
INPUTS/OUTPUTS

A	:	NON-INV DRIVER OUTPUT/RECEIVER INPUT
B	:	INV DRIVER OUTPUT/RECEIVER INPUT

HD64F2328VTE25 (HITACHI)

16-BIT MICROCONTROLLER

—TOP VIEW—



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	Vcc	41	I/O	PE6/D6	81	—	Vcc
2	I/O	PC0/A0	42	I/O	PE7/D7	82	I/O	PF6/$\overline{AS}$
3	I/O	PC1/A1	43	I/O	PD0/D8	83	I/O	PF5/$\overline{RD}$
4	I/O	PC2/A2	44	I/O	PD1/D9	84	I/O	PF4/$\overline{HWR}$
5	I/O	PC3/A3	45	I/O	PD2/D10	85	I/O	PF3/$\overline{LWR}$
6	—	GND	46	I/O	PD3/D11	86	I/O	PF2/$\overline{LCAS}$/WAIT/$\overline{BREQO}$
7	I/O	PC4/A4	47	—	GND	87	I/O	PF1/$\overline{BACK}$
8	I/O	PC5/A5	48	I/O	PD4/D12	88	I/O	PF0/$\overline{BREQ}$
9	I/O	PC6/A6	49	I/O	PD5/D13	89	I/O	P50/TxD2/$\overline{IRQ4}$
10	I/O	PC7/A7	50	I/O	PD6/D14	90	I/O	P51/RxD2/$\overline{IRQ5}$
11	I/O	PB0/A8	51	I/O	PD7/D15	91	I/O	P52/SCK2/$\overline{IRQ6}$
12	I/O	PB1/A9	52	—	Vcc	92	I/O	P53/$\overline{ADTRG}$/$\overline{IRQ7}$/WAIT/$\overline{BREQO}$
13	I/O	PB2/A10	53	I/O	P30/TxD0	93	—	A.Vcc
14	I/O	PB3/A11	54	I/O	P31/TxD1	94	I	VREF
15	—	GND	55	I/O	P32/RxD0	95	I	P40/AN0
16	I/O	PB4/A12	56	I/O	P33/RxD1	96	I	P41/AN1
17	I/O	PB5/A13	57	I/O	P34/SCK0	97	I	P42/AN2
18	I/O	PB6/A14	58	I/O	P35/SCK1	98	I	P43/AN3
19	I/O	PB7/A15	59	—	GND	99	I	P44/AN4
20	I/O	PA0/A16	60	I/O	P60/$\overline{DREQ0}$/$\overline{CS4}$	100	I	P45/AN5
21	I/O	PA1/A17	61	I/O	P61/$\overline{TEND0}$/$\overline{CS5}$	101	I/O	P46/AN6/DA0
22	I/O	PA2/A18	62	I/O	P62/$\overline{DREQ1}$	102	I/O	P47/AN7/DA1
23	I/O	PA3/A19	63	I/O	P63/$\overline{TEND1}$	103	—	A.GND
24	—	GND	64	I/O	P27/PO7/TIOCB5/TMO1	104	—	GND
25	I/O	PA4/A20/$\overline{IRQ4}$	65	I/O	P26/PO6/TIOCA5/TMO0	105	I/O	P17/PO15/TIOCB2/TCLKD
26	I/O	PA5/A21/$\overline{IRQ5}$	66	I/O	P25/PO5/TIOCB4/TMCI1	106	I/O	P16/PO14/TIOCA2
27	I/O	PA6/A22/$\overline{IRQ6}$	67	I/O	P24/PO4/TIOCA4/TMRI1	107	I/O	P15/PO13/TIOCB1/TCLKC
28	I/O	PA7/A23/$\overline{IRQ7}$	68	I/O	P23/PO3/TIOCD3/TMCI0	108	I/O	P14/PO12/TIOCA1
29	I/O	P67/$\overline{CS7}$/$\overline{IRQ3}$	69	I/O	P22/PO2/TIOCC3/TMRI0	109	I/O	P13/PO11/TIOCD0/TCLKB
30	I/O	P66/$\overline{CS6}$/$\overline{IRQ2}$	70	I/O	P21/PO1/TIOCB3	110	I/O	P12/PO10/TIOCC0/TCLKA
31	I/O	P65/$\overline{IRQ1}$	71	I/O	P20/PO0/TIOCA3	111	I/O	P11/PO9/TIOCB0/$\overline{DACK1}$
32	I/O	P64/$\overline{IRQ0}$	72*	O	$\overline{WDTOVF}$	112	I/O	P10/PO8/TIOCA0/$\overline{DACK0}$
33	—	Vcc	73	I	$\overline{RES}$	113	I	MD0
34	I/O	PE0/D0	74	I	NMI	114	I	MD1
35	I/O	PE1/D1	75	I	$\overline{STBY}$	115	I	MD2
36	I/O	PE2/D2	76	—	Vcc	116	I/O	PG0/$\overline{CAS}$
37	I/O	PE3/D3	77	I	XTAL	117	I/O	PG1/$\overline{CS3}$
38	—	GND	78	I	EXTAL	118	I/O	PG2/$\overline{CS2}$
39	I/O	PE4/D4	79	—	GND	119	I/O	PG3/$\overline{CS1}$
40	I/O	PE5/D5	80	I/O	PF7/	120	I/O	PG4/$\overline{CS0}$

* : For HD64F2328VTE25

72	I	FWE

INPUTS

$\overline{ADTRG}$	: EXTERNAL TRIGGER FOR A/D CONVERSION
AN0 - AN7	: ANALOG SIGNAL
$\overline{BREQ}$	: BUS REQUEST
EXTAL	: CRYSTAL OSCILLATOR
FWE	: FLASH WRITE ENABLE (For HD64F2328VTE25)
$\overline{IRQ0}$ - $\overline{IRQ7}$	: INTERRUPT REQUEST
MD0 - MD2	: MODE SELECT
NMI	: NON-MASKABLE INTERRUPT
P40 - P47	: PORT4
$\overline{RES}$	: RESET
RXD0, RXD1	: RECEIVE DATA
$\overline{STBY}$	: STANDBY
TCLKA - TCLKD	: EXTERNAL CLOCK
TMCI0, TMCI1	: EXTERNAL COUNTER CLOCK
TMRI0, TMRI1	: EXTERNAL COUNTER RESET
$\overline{WAIT}$	: WAIT
XTAL	: CRYSTAL OSCILLATOR

OUTPUTS

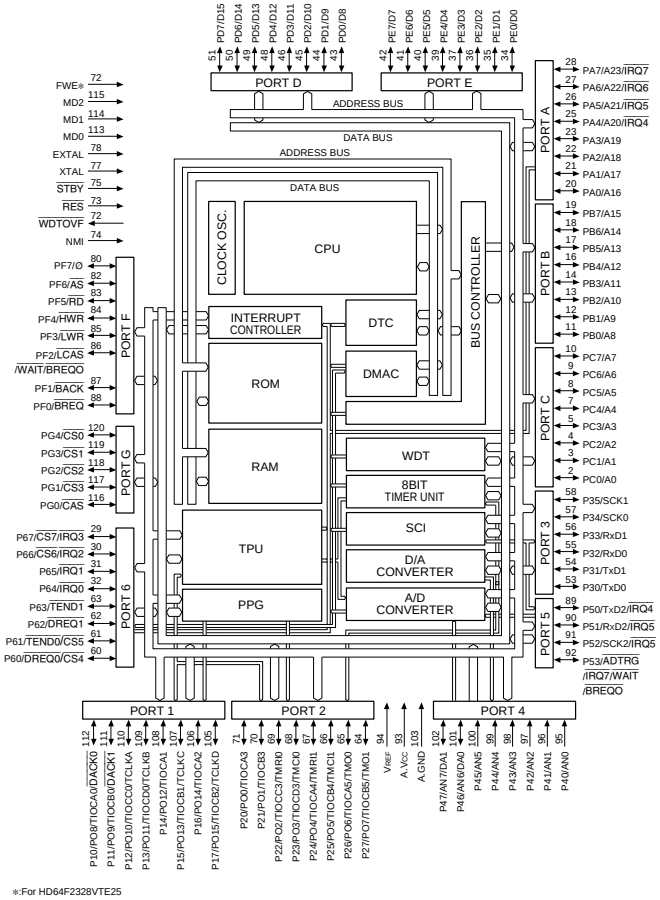
ø	: SYSTEM CLOCK
A0 - A23	: ADDRESS BUS
$\overline{AS}$	: ADDRESS STROBE
$\overline{BACK}$	: BUS REQUEST ACKNOWLEDGE
$\overline{CAS}$	: COLUMN ADDRESS STROBE
$\overline{CS0}$ - $\overline{CS5}$	: CHIP SELECT
DA0, DA1	: ANALOG SIGNAL
$\overline{HWR}$	: HIGH WRITE
$\overline{LWR}$	: LOW WRITE
$\overline{RD}$	: READ
TMO0, TMO1	: COMPARE MATCH
TXD0, TXD1	: TRANSMIT DATA
$\overline{WDTOVF}$	: WATCH DOG TIMER OVERFLOW

INPUTS/OUTPUTS

D0 - D15	: DATA BUS
P10 - P17	: PORT 1
P20 - P27	: PORT 2
P30 - P35	: PORT 3
PA0 - PA3	: PORT A
PB0 - PB7	: PORT B
PC0 - PC7	: PORT C
PD0 - PD7	: PORT D
PE0 - PE7	: PORT E
PF0 - PF7	: PORT F
PG0 - PG4	: PORT G
SCK0, SCK1	: SERIAL CLOCK
TIOC	: INPUT CAPTURE/OUTPUT COMPARE MATCH

OTHERS

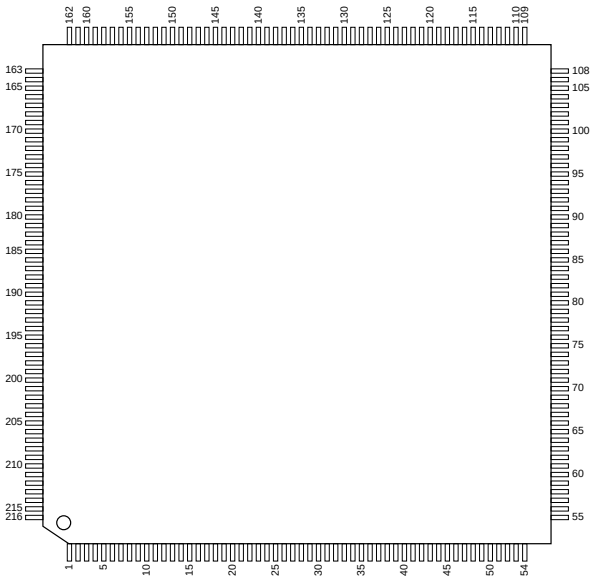
VREF	: REFERENCE VOLTAGE



*:For HD64F2328VTE25

MR-SHPC-02V1 (MARUBUN)

PC CARD CONTROLLER
—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	I	RESET	55	O	CA4 A	109	O	CA16 B	163	I	CKIO
2	I	SRD	56	I	CWAIT A	110	O	CA22 B	164	—	GND
3	I	SWE0	57	O	CA3 A	111	O	CA15 B	165	I	ENDIAN
4	I	SWE1	58	I	CINPACK A	112	O	CA23 B	166	I	SA25
5	I	BS	59	O	CA2 A	113	O	CA12 B	167	I	SA24
6	I	CS	60	—	CARD Vcc	114	O	CA24 B	168	I	SA23
7	I/O	CD3 A	61	O	CREG A	115	O	CA7 B	169	I	SA22
8	I	CCD1 A	62	O	CA1 A	116	O	CA25 B	170	I	SA21
9	I/O	CD4 A	63	I	CBVD2 SPKR A	117	O	CA6 B	171	I	SA20
10	I/O	CD11 A	64	O	CA0 A	118	I	CVS2 B	172	I	SA19
11	I/O	CD5 A	65	I	CBVD1 STSCHG A	119	O	CA5 B	173	I	SA18
12	—	SYSTEM Vcc	66	I/O	CD0 A	120	—	SYSTEM Vcc	174	I	SA17
13	I/O	CD12 A	67	I/O	CD8 A	121	—	GND	175	I	SA16
14	I/O	CD6 A	68	I/O	CD1 A	122	O	CRESET B	176	I	SA15
15	I/O	CD13 A	69	I/O	CD9 A	123	O	CA4 B	177	I	SA14
16	—	GND	70	—	GND	124	I	CWAIT B	178	I	SA13
17	I/O	CD7 A	71	I/O	CD2 A	125	O	CA3 B	179	I	SA12
18	I/O	CD14 A	72	I/O	CD10 A	126	I	CINPACK	180	I	SA11
19	O	CCE1 A	73	I	CWP XIOIS16 A	127	O	CA2 B	181	—	GND
20	I/O	CD15 A	74	I	CCD2 A	128	—	CARD Vcc	182	I	SA10
21	O	CD10 A	75	I/O	CD3 B	129	O	CREG B	183	I	SA9
22	O	CCE2 A	76	I	CCD1 B	130	O	CA1 B	184	I	SA8
23	O	COE A	77	I/O	CD4 B	131	I	CBVD2 SPKR B	185	I	SA7
24	I	CVS1 A	78	I/O	CD11 B	132	O	CA0 B	186	I	SA6
25	O	CA11 A	79	I/O	CD5 B	133	I	CBVD1 STSCHG B	187	I	SA5
26	—	CARD Vcc	80	—	SYSTEM Vcc	134	I/O	CD0 B	188	I	SA4
27	O	CIORD A	81	I/O	CD12 B	135	I/O	CD8 B	189	I	SA3
28	O	CA9 A	82	I/O	CD6 B	136	I/O	CD1 B	190	I	SA2
29	O	CIOWR A	83	I/O	CD13 B	137	I/O	CD9 B	191	I	SA1
30	O	CA8 A	84	—	GND	138	—	GND	192	I	SA0
31	O	CA17 A	85	I/O	CD7 B	139	I/O	CD2 B	193	—	GND
32	O	CA13 A	86	I/O	CD14 B	140	I/O	CD10 B	194	I/O	SD15
33	O	CA18 A	87	O	CCE1 B	141	I	CWP XIOIS16 B	195	I/O	SD14
34	O	CA14 A	88	I/O	CD15 B	142	I	CCD2 B	196	I/O	SD13
35	—	GND	89	O	CA10 B	143	O	CVPP1 B	197	I/O	SD12
36	O	CA19 A	90	O	CCE2 B	144	O	CVPP0 B	198	I/O	SD11
37	O	CWE PGM A	91	O	COE B	145	O	CVCC3 B	199	—	SYSTEM Vcc
38	O	CA20 A	92	I	CVS1 B	146	O	CVCC5 B	200	I/O	SD10
39	I	CRDY XBSY IREQ A	93	O	CA11 B	147	O	VPP1 A	201	I/O	SD9
40	O	CA21 A	94	O	CIORD B	148	O	VPP0 A	202	I/O	SD8
41	O	CA16 A	95	O	CA9 B	149	O	CVCC3 A	203	—	GND
42	O	CA22 A	96	O	CIOWR B	150	O	CVCC5 A	204	I/O	SD7
43	O	CA15 A	97	—	CARD Vcc	151	I	CARD PW GOOD B	205	I/O	SD6
44	O	CA23 A	98	O	CA8 B	152	I	CARD PW GOOD A	206	I/O	SD5
45	O	CA12 A	99	O	CA17 B	153	O	SPKR OUT	207	I/O	SD4
46	O	CA24 A	100	O	CA13 B	154	O	LED OUT	208	I/O	SD3
47	O	CA7 A	101	O	CA18 B	155	O	SWAIT	209	I/O	SD2
48	O	CA25 A	102	O	CA14 B	156	—	NC	210	I/O	SD1
49	O	CA6 A	103	—	GND	157	I	TEST	211	I/O	SD0
50	I	CVS2 A	104	O	CA19 B	158	I	RA25	212	—	GND
51	O	CA5 A	105	O	CWE PGM B	159	I	RA24	213	O	SIRQ3
52	—	SYSTEM Vcc	106	O	CA20 B	160	I	RA23	214	O	SIRQ2
53	—	GND	107	I	CRDY BSY IREQ B	161	I	RA22	215	O	SIRQ1
54	O	CRESET A	108	O	CA21 B	162	—	SYSTEM Vcc	216	O	SIRQ0

INPUTS

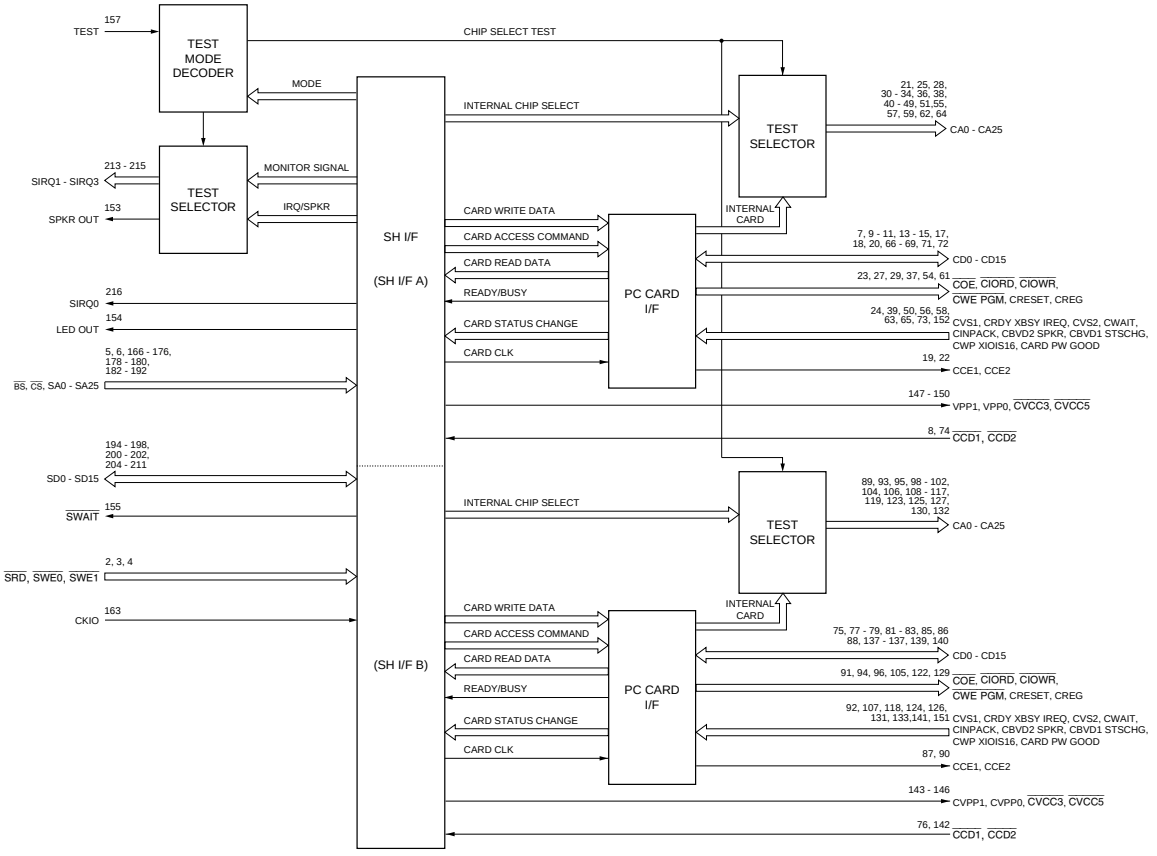
BS	: BUS STROBE
CBVD1 STSCHG	: BATTERY VOLTAGE DETECT, STATUS DETECT
CBVD2 SPKER	: BATTERY VOLTAGE DETECT, SPEAKER
CCD1, CCD2	: CARD DETECT
CINPACK	: READ DATA CONTROL
CKIO	: SYSTEM CLOCK
CRDY BSY IREQ	: READY/BUSY INTERRUPT REQUEST
CS	: CHIP SELECT
CVS1, CVS2	: CARD POWER DETECT
CWAIT	: WRITE PROTECT
CWP XIOIS16	: ENDIAN SELECT
ENDIAN	: REGISTER MSB ADDRESS
RA22 - RA25	: SYSTEM RESET
RESET	: SYSTEM ADDRESS BUS
SA0 - SA25	: READ
SRD	: WAITE REQUEST
SWE0, SWE1	: WRITE
TEST	: TEST

OUTPUTS

CD0 - CD15	: CARD DATA BUS
SD0 - SD15	: SYSTEM DATA BUS
SWAIT	: CARD WAIT REQUEST

INPUTS/OUTPUTS

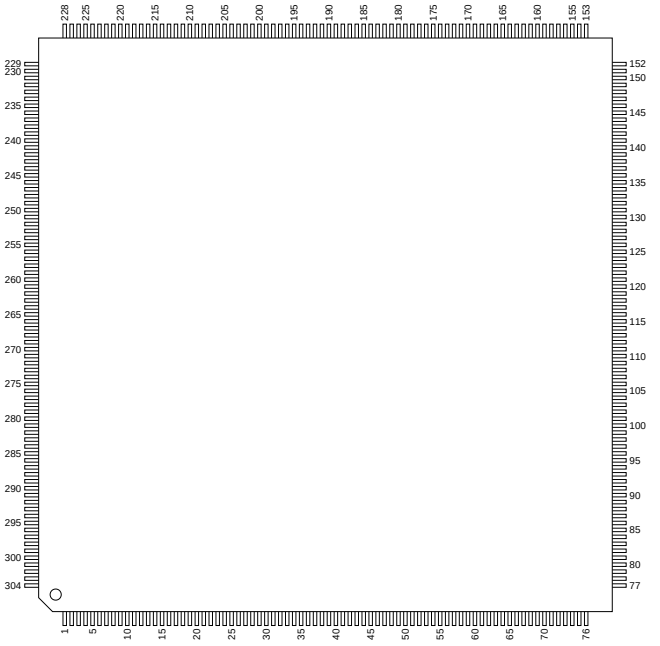
CA0 - CA25	: CARD ADDRESS BUS
CCE1, CCE2	: CARD ENABLE
CIORD	: CARD I/O READ
CIOWR	: CARD I/O WRITE
COE	: CARD OUTPUT ENABLE
CREG	: MEMORY AREA SELECT
CRESET	: CARD RESET
CWE PGM	: CARD WRITE ENABLE
LED OUT	: LED
SIRQ0 - SIRQ3	: INTERRUPT REQUEST
SPKR OUT	: SPEAKER


TEST
157
TEST MODE DECODER
CHIP SELECT TEST
MODE
INTERNAL CHIP SELECT
TEST SELECTOR
21, 25, 28, 30 - 34, 36, 38, 40 - 49, 51,55, 57, 59, 62, 64
CA0 - CA25
213 - 215
SIRQ1 - SIRQ3
MONITOR SIGNAL
TEST SELECTOR
SPKR OUT
153
IRQ/SPKR
SH I/F
(SH I/F A)
CARD WRITE DATA
CARD ACCESS COMMAND
CARD READ DATA
READY/BUSY
CARD STATUS CHANGE
CARD CLK
INTERNAL CARD
PC CARD I/F
7, 9 - 11, 13 - 15, 17, 18, 20, 66 - 69, 71, 72
CD0 - CD15
23, 27, 29, 37, 54, 61
COE, CIORD, CIOWR, CWE PGM, CRESET, CREG
24, 39, 50, 56, 58, 63, 65, 73, 152
CVS1, CRDY XBSY IREQ, CVS2, CWAIT, CINPACK, CBVD2 SPKR, CBVD1 STSCHG, CWP XIOIS16, CARD PW GOOD
19, 22
CCE1, CCE2
147 - 150
VPP1, VPP0, CVCC3, CVCC5
8, 74
CCD1, CCD2
216
SIRQ0
154
LED OUT
5, 6, 166 - 176, 178 - 180, 182 - 192
BS, CS, SA0 - SA25
194 - 198, 200 - 202, 204 - 211
SD0 - SD15
155
SWAIT
2, 3, 4
SRD, SWE0, SWE1
163
CKIO
(SH I/F B)
TEST SELECTOR
89, 93, 95, 98 - 102, 104, 106, 108 - 117, 119, 123, 125, 127, 130, 132
CA0 - CA25
INTERNAL CHIP SELECT
CARD WRITE DATA
CARD ACCESS COMMAND
CARD READ DATA
READY/BUSY
CARD STATUS CHANGE
CARD CLK
INTERNAL CARD
PC CARD I/F
75, 77 - 79, 81 - 83, 85, 86 88, 137 - 137, 139, 140
CD0 - CD15
91, 94, 96, 105, 122, 129
COE, CIORD, CIOWR, CWE PGM, CRESET, CREG
92, 107, 118, 124, 126, 131, 133,141, 151
CVS1, CRDY XBSY IREQ, CVS2, CWAIT, CINPACK, CBVD2 SPKR, CBVD1 STSCHG, CWP XIOIS16, CARD PW GOOD
87, 90
CCE1, CCE2
143 - 146
CVPP1, CVPP0, CVCC3, CVCC5
76, 142
CCD1, CCD2

UPD65454GL-231-NMU (NEC)

JPEG FORMAT CONVERTER

—TOP VIEW—



PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	—	GND	51	I/O	SRD 13	101	I	XSHWE 1	151	—	Vcc
2	—	GND	52	I/O	SRD 14	102	I	XSHWE 0	152	—	Vcc
3	I	CCLK	53	I	CAMC 1	103	I	XSHRD	153	—	GND
4	I	XRST	54	I	CAMC 2	104	I	XBS	154	—	GND
5	I	AMC	55	I	CAMC 3	105	I	XSHCS3	155	I/O	SHD 4
6	O	SRADD 0	56	I	CAMC 4	106	I/O	SHD 26	156	I/O	SHD 3
7	O	SRADD 1	57	—	Vcc	107	I/O	SHD 25	157	I/O	SHD 2
8	O	SRADD 2	58	—	GND	108	I/O	SHD 24	158	I/O	SHD 1
9	O	SRADD 3	59	I/O	SRD 15	109	I/O	SHD 23	159	I/O	SHD 0
10	I	SMC	60	O	XSRWE	110	I/O	SHD 22	160	I/O	XSHDACK
11	I	SCK	61	O	SRADD 8	111	I/O	SHD 21	161	—	Vcc
12	I	SIN	62	O	SRADD 9	112	I/O	SHD 20	162	—	GND
13	—	GND	63	I	CAMC 5	113	—	Vcc	163	O	XSHDREQ
14	O	SOT	64	I	CAMC 6	114	—	Vcc	164	O	XFRCS 00
15	O	SRADD 4	65	I	CAMC 7	115	—	GND	165	O	XFRCS 01
16	O	SRADD 5	66	—	GND	116	—	GND	166	O	XPECS 10
17	O	SRADD 6	67	—	Vcc	117	I/O	XSHCS0	167	O	XPECS 11
18	O	SRADD 7	68	O	SRADD 10	118	I/O	XSHCS1	168	O	XPECS 12
19	—	Vcc	69	O	SRADD 11	119	I	XSHCS2	169	O	XPECS 22
20	—	GND	70	O	SRADD 12	120	I	TEST 2	170	O	XPECS 23
21	O	XSRRD	71	O	SRADD 13	121	I	SHAD 24	171	—	Vcc
22	I/O	SRD 0	72	I	FLD	122	I	SHAD 23	172	—	GND
23	I/O	SRD 1	73	I	XVD	123	I	SHAD 22	173	O	XSHWAT
24	I/O	SRD 2	74	I	XHD	124	I	SHAD 9	174	I	XEXWAT 0
25	I	CAMY 0	75	—	GND	125	I/O	SHD 19	175	I	XEXWAT 1
26	I	CAMY 1	76	—	GND	126	I/O	SHD 18	176	I	XEXWAT 2
27	I	CAMY 2	77	—	Vcc	127	I/O	SHD 17	177	I	XEXWAT 3
28	—	GND	78	—	Vcc	128	I/O	SHD 16	178	O	XSHINT0
29	—	Vcc	79	O	SRADD 14	129	I/O	SHD 15	179	O	XSHINT1
30	I/O	SRD 3	80	I	WEN	130	I/O	SHD 14	180	O	XSHINT2
31	I/O	SRD 4	81	I/O	EXINT 03	131	I/O	SHD 13	181	O	XSHINT3
32	I/O	SRD 5	82	I/O	EXINT 02	132	I/O	SHD 12	182	O	TESTOUT 2
33	I/O	SRD 6	83	I/O	EXINT 01	133	—	GND	183	O	TESTOUT 1
34	I	CAMY 3	84	I/O	EXINT 00	134	—	GND	184	O	TESTOUT 0
35	I	CAMY 4	85	I/O	EXINT 13	135	I	SHAD 8	185	I/O	XJEND
36	I	CAMY 5	86	I/O	EXINT 12	136	I	SHAD 7	186	O	XJRD
37	—	Vcc	87	I/O	EXINT 11	137	I	SHAD 6	187	O	XJWR
38	—	Vcc	88	I/O	EXINT 10	138	I	SHAD 5	188	O	XJCS
39	—	GND	89	I	TEST 3	139	I	SHAD 4	189	—	Vcc
40	—	GND	90	I/O	SHD 31	140	I	SHAD 3	190	—	Vcc
41	I/O	SRD 7	91	I/O	SHD 30	141	I	SHAD 2	191	—	GND
42	I/O	SRD 8	92	I/O	SHD 29	142	I	SHAD 1	192	—	GND
43	I/O	SRD 9	93	I/O	SHD 28	143	I	SHAD 0	193	O	JDCLK
44	I/O	SRD 10	94	I/O	SHD 27	144	I/O	SHD 11	194	O	JCLKEN
45	I	CAMY 6	95	—	GND	145	I/O	SHD 10	195	I/O	XJINT
46	I	CAMY 7	96	—	GND	146	I/O	SHD 9	196	I/O	JCODE 0
47	I	CAMC 0	97	I	SYCLK	147	I/O	SHD 8	197	I/O	JCODE 1
48	—	GND	98	I	XSHRWDIR	148	I/O	SHD 7	198	I/O	JCODE 2
49	I/O	SRD 11	99	I	XSHWE 3	149	I/O	SHD 6	199	I/O	JCODE 3
50	I/O	SRD 12	100	I	XSHWE 2	150	I/O	SHD 5	200	I/O	JCODE 4

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
201	I/O	JCODE 5	227	—	GND	253	I/O	XSDCAS	279	I/O	SDAD 0
202	I/O	JCODE 6	228	—	GND	254	—	GND	280	—	GND
203	I/O	JCODE 7	229	—	Vcc	255	O	SDCLK	281	I/O	SDD 31
204	O	XJCBUSY	230	—	Vcc	256	—	Vcc	282	I/O	SDD 30
205	I/O	XJCAEN	231	I	TEST 1	257	I/O	XSDRAS	283	I/O	SDD 29
206	O	XJSTDBY	232	I/O	SDD 13	258	O	SDAD 13	284	I/O	SDD 28
207	I/O	PIXD 0	233	I/O	SDD 12	259	O	SDAD 12	285	—	GND
208	I/O	PIXD 1	234	I/O	SDD 11	260	—	GND	286	—	GND
209	—	Vcc	235	I/O	SDD 10	261	O	SDAD 11	287	I	TEB
210	—	GND	236	—	Vcc	262	O	SDAD 10	288	I/O	SDD 27
211	O	XJRST	237	—	GND	263	O	SDAD 9	289	I/O	SDD 26
212	I/O	PIXD 2	238	I/O	SDD 9	264	O	SDAD 8	290	I/O	SDD 25
213	I/O	PIXD 3	239	I/O	SDD 8	265	—	Vcc	291	I/O	SDD 24
214	I/O	PIXD 4	240	I/O	SDD 7	266	—	Vcc	292	—	Vcc
215	—	GND	241	I/O	SDD 6	267	—	GND	293	—	GND
216	I/O	PIXD 5	242	—	GND	268	—	GND	294	I/O	SDD 23
217	I/O	PIXD 6	243	I/O	SDD 5	269	I	TIN	295	I/O	SDD 22
218	I/O	PIXD 7	244	I/O	SDD 4	270	O	SDAD 7	296	I/O	SDD 21
219	—	Vcc	245	I/O	SDD 3	271	O	SDAD 6	297	I/O	SDD 20
220	O	XDSYNC	246	I/O	SDD 2	272	O	SDAD 5	298	—	GND
221	—	GND	247	—	GND	273	I/O	SDAD 4	299	I/O	SDD 19
222	O	XEOS	248	—	GND	274	—	Vcc	300	I/O	SDD 18
223	I/O	XSTOP	249	I	TEST 0	275	—	GND	301	I/O	SDD 17
224	I/O	COMP	250	I/O	SDD 1	276	I/O	SDAD 3	302	I/O	SDD 16
225	I/O	SDD 15	251	I/O	SDD 0	277	I/O	SDAD 2	303	—	Vcc
226	I/O	SDD 14	252	I/O	XSDWE	278	I/O	SDAD 1	304	—	Vcc

Section 6
Spare Parts

6-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

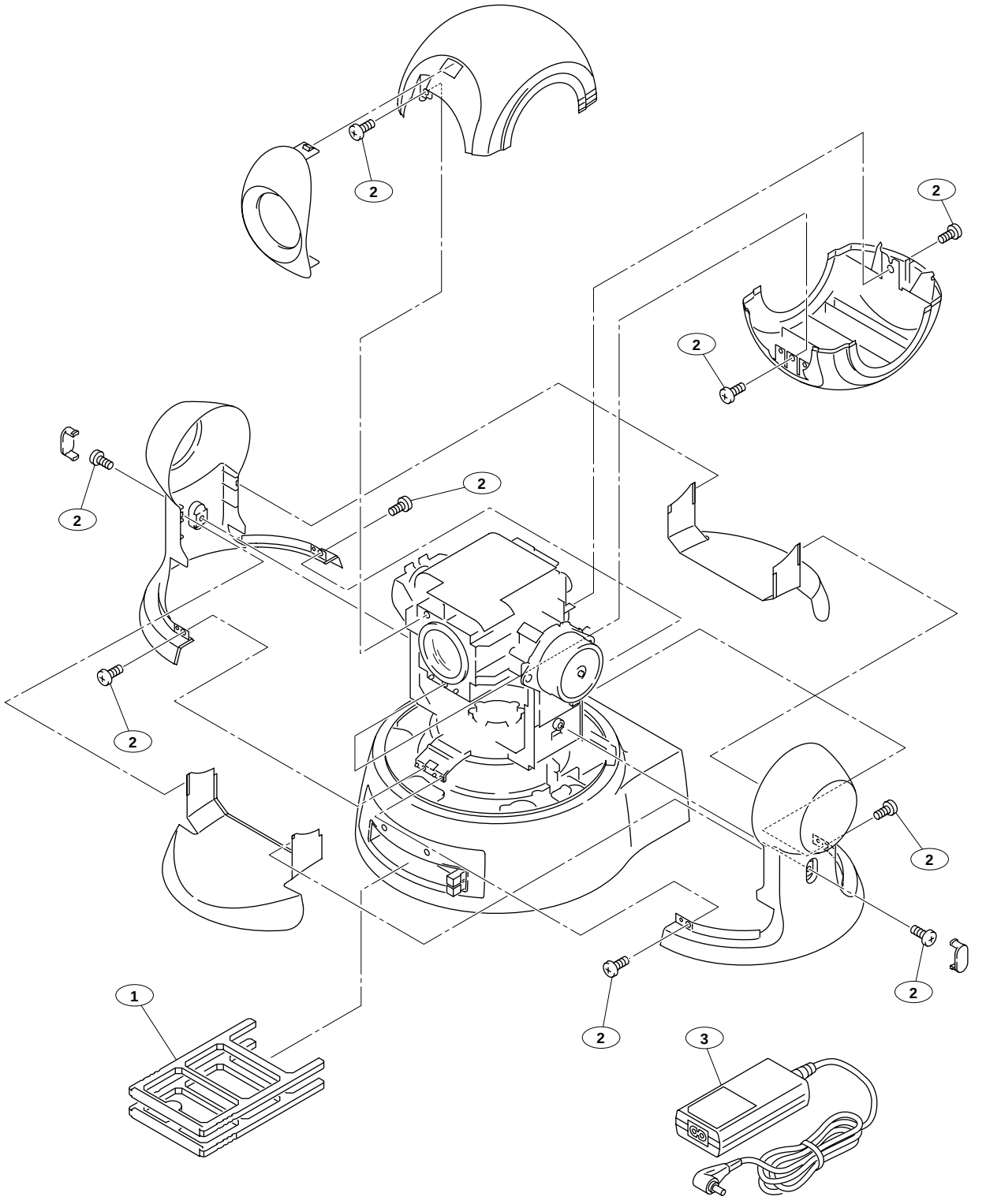
3. Stock of Parts

Parts marked with “o” at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

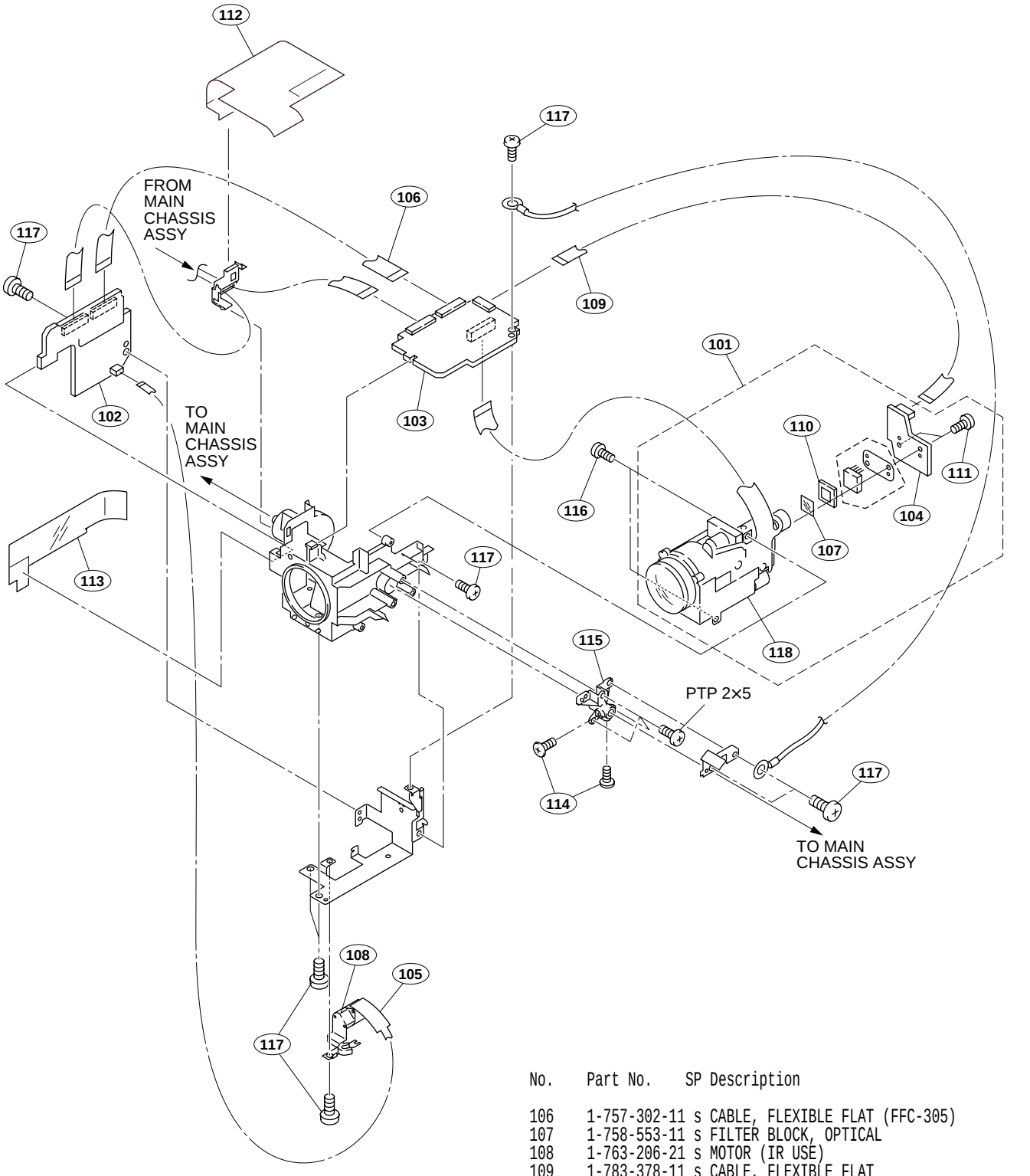
Harnesses with no part number are not registered as spare parts.
In need of repair, get components shown in the list and repair using them.

6-2. Exploded Views



No. Part No. SP Description

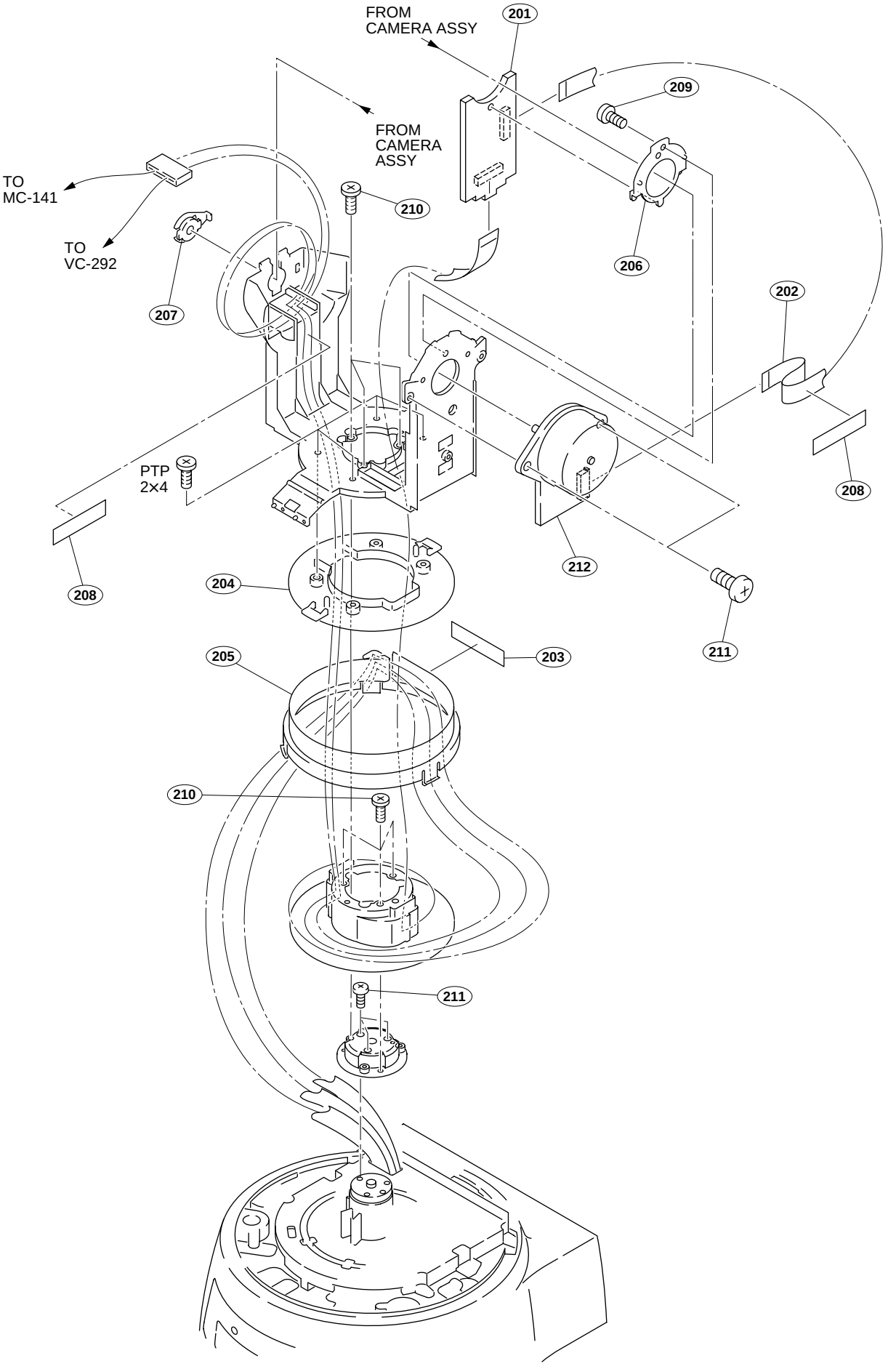
1 4-643-832-02 s DUMMY CARD (PC/ABS)
2 4-644-492-71 s ACE (M2), LOCK
3 ⚠ 1-468-626-31 s ADAPTOR, AC



No.	Part No.	SP	Description
101	A-7012-749-A	s	LENS BLOCK ASSY (NTSC) (for SNC-RZ30N (UC))
	A-7012-754-A	s	LENS BLOCK ASSY (PAL) (for SNC-RZ30P (CE))
102	A-7078-273-A	s	MOUNTED CIRCUIT BOARD, MC-141
103	A-7078-274-A	s	MOUNTED CIRCUIT BOARD, VC-292(NT) (for SNC-RZ30N (UC))
	A-7078-276-A	s	MOUNTED CIRCUIT BOARD, VC-292(PAL) (for SNC-RZ30P (CE))
104	A-7078-275-A	s	MOUNTED CIRCUIT BOARD, CD-400
105	1-672-209-11	s	PRINTED WIRING BOARD, FP-64 FLEXIBLE

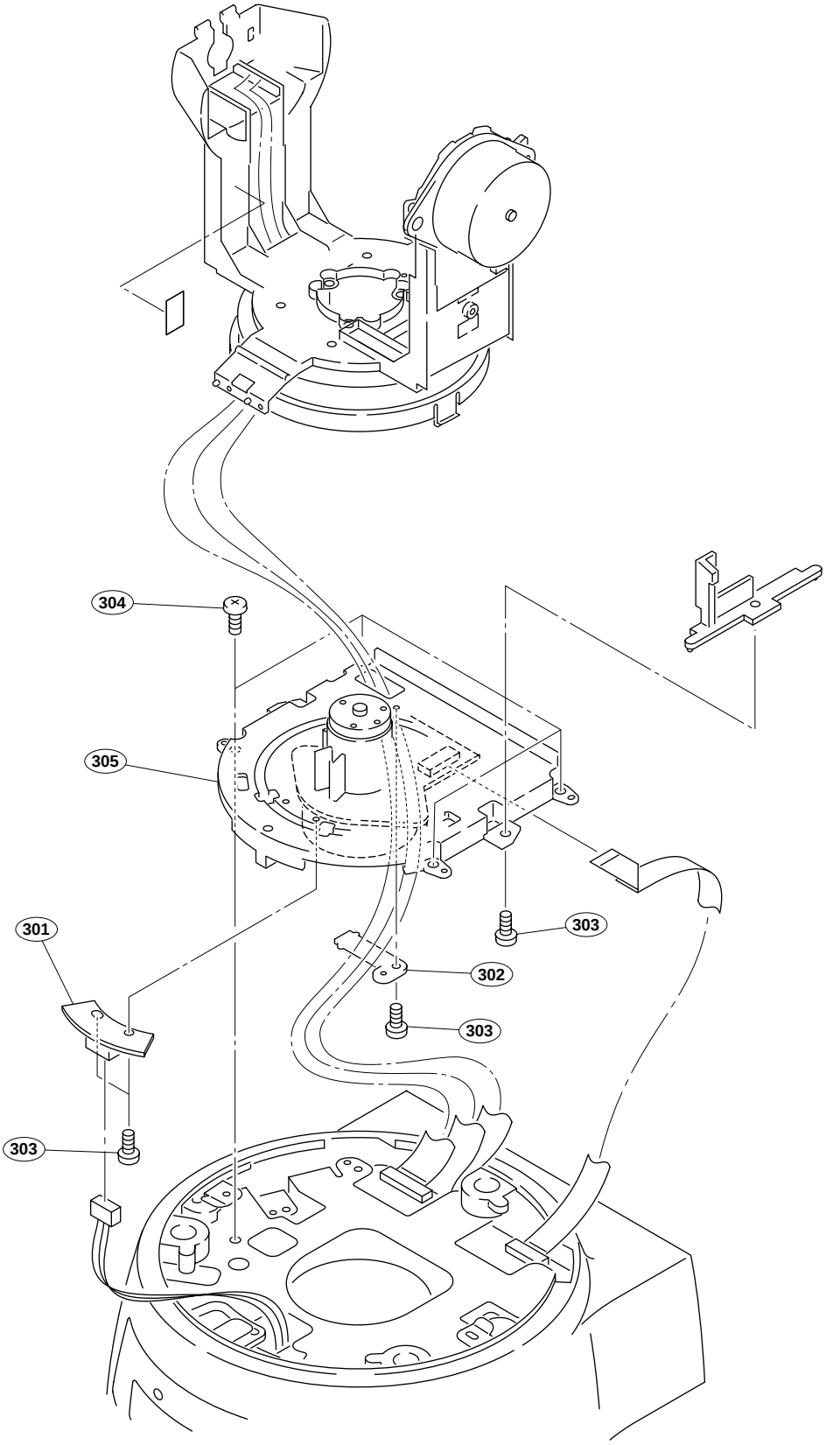
No.	Part No.	SP	Description
106	1-757-302-11	s	CABLE, FLEXIBLE FLAT (FFC-305)
107	1-758-553-11	s	FILTER BLOCK, OPTICAL
108	1-763-206-21	s	MOTOR (IR USE)
109	1-783-378-11	s	CABLE, FLEXIBLE FLAT
110	3-053-973-01	s	RUBBER (W), SEAL
111	3-318-203-11	s	SCREW +BTP 1.7X6
112	3-620-526-02	s	INSULATOR(1)
113	3-620-527-02	s	INSULATOR(2)
114	3-620-681-01	s	SET SCREW (M2WP)
115	3-647-973-02	o	COUPLING
116	3-713-791-71	s	SCREW +P M1.7X4 TAPIG
117	4-644-492-21	s	ACE (M2), LOCK
118	8-848-740-01	s	DEVICE, LENS LSV-700A
	7-685-103-19	s	SCREW +PTP 2X5

Chassis Block 1



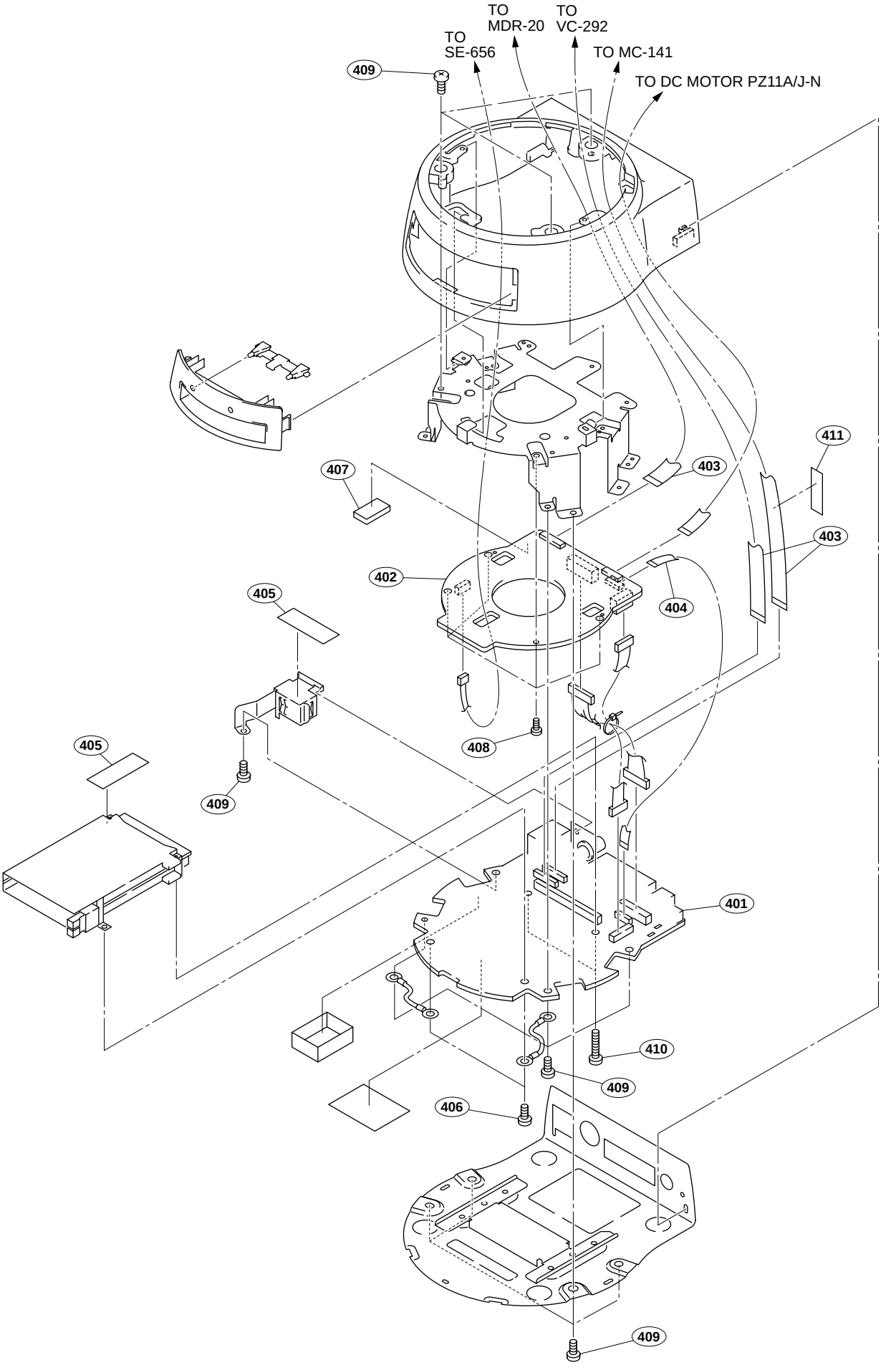
No.	Part No.	SP	Description
201	A-8345-349-A	s	MOUNTED CIRCUIT BOARD, MDR-20
202	1-824-898-11	s	CABLE, FLEXIBLE FLAT (16 CORE)
203	3-592-352-01	o	PAPER, VIBRATION PROOF (C)
204	3-647-922-01	o	COVER,CABLE
205	3-647-924-03	o	COVER(LOWER), CABLE
206	3-647-941-03	o	RETAINER,PC BOARD
207	3-647-942-02	o	BOSS,SHAFT
208	3-941-343-21	s	TAPE (A) (28X9) (FAB-NW+PSA)
209	4-644-492-21	s	ACE (M2), LOCK
210	4-644-492-71	s	ACE (M2), LOCK
211	4-644-493-11	s	ACE (M2.6), LOCK
212	8-835-740-02	s	MOTOR, DC SPZ12A/J-N
	7-685-102-19	s	SCREW +PTP2X4

Chassis Block 2



No.	Part No.	SP	Description
301	A-8345-348-A	s	MOUNTED CIRCUIT BOARD, SE-656
302	3-647-926-01	o	RESTRAIN, CABLE
303	4-644-492-71	s	ACE (M2), LOCK
304	4-644-493-11	s	ACE (M2.6), LOCK
305	8-835-739-01	s	MOTOR, DC SPZ11A/J-N

Chassis Block 3



No.	Part No.	SP	Description
401	A-8279-807-A	s	MOUNTED CIRCUIT BOARD, SY-303(N)(RP) (for SNC-RZ30N (UC))
	A-8279-808-A	s	MOUNTED CIRCUIT BOARD, SY-303(P)(RP) (for SNC-RZ30P (CE))
402	A-8346-161-A	s	MOUNTED CIRCUIT BOARD, MDR-19
403	1-824-542-11	s	CABLE, FLEXIBLE FLAT
404	1-824-544-11	s	CABLE, FLEXIBLE FLAT (12 CORE)
405	3-064-340-01	s	TAPE, VF
406	3-696-947-01	s	SCREW(+B2.5X5)
407	3-704-914-01	s	CUSHION
408	4-644-492-71	s	ACE (M2), LOCK
409	4-644-493-11	s	ACE (M2.6), LOCK
410	4-644-518-01	s	SCREW (M2X18), +B
411	9-911-837-99	s	SHADING CLOTH (FAB-NW)

6-3. Electrical Parts List

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CAMERA BLOCK ASSEMBLY
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*UC:[SNC-RZ30N(UC)]
*CE:[SNC-RZ30P(CE)]

 Ref. No.
 or Q'ty  Part No.    SP Description

 1pc  *UC A-7012-749-A s LENS BLOCK ASSY (NTSC)
 1pc  *CE A-7012-754-A s LENS BLOCK ASSY (PAL)
 1pc      A-7078-273-A s MOUNTED CIRCUIT BOARD, MC-141
 1pc  *UC A-7078-274-A s MOUNTED CIRCUIT BOARD, VC-292(NT)
 1pc      A-7078-275-A s MOUNTED CIRCUIT BOARD, CD-400

 1pc  *CE A-7078-276-A s MOUNTED CIRCUIT BOARD, VC-292(PAL)
 1pc      1-672-209-11 s PRINTED WIRING BOARD, FP-64 FLEXIBLE
 1pc      1-757-302-11 s CABLE, FLEXIBLE FLAT (FFC-305)
 1pc      1-758-553-11 s FILTER BLOCK, OPTICAL
 1pc      1-763-206-21 s MOTOR (IR USE)

 1pc      1-783-378-11 s CABLE, FLEXIBLE FLAT
 1pc      8-848-740-01 s DEVICE, LENS LSV-700A
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MDR-19 BOARD
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 Ref. No.
 or Q'ty  Part No.    SP Description

 1pc      A-8346-161-A s MOUNTED CIRCUIT BOARD, MDR-19

 C1001    1-115-670-11 s CAPACITOR ELECT 220MF/35V(CHIP
 C1002    1-115-670-11 s CAPACITOR ELECT 220MF/35V(CHIP
 C1003    1-115-670-11 s CAPACITOR ELECT 220MF/35V(CHIP
 C1004    1-164-156-11 s CAPACITOR,CERAMIC 0.1MF/25V F
 C1005    1-164-156-11 s CAPACITOR,CERAMIC 0.1MF/25V F

 C1006    1-164-156-11 s CAPACITOR,CERAMIC 0.1MF/25V F
 C1008    1-135-366-11 s CAPACITOR ELECT 100MF (SMD)
 C1009    1-135-366-11 s CAPACITOR ELECT 100MF (SMD)
 C1010    1-115-670-11 s CAPACITOR ELECT 220MF/35V(CHIP
 C1011    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V

 C1012    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1013    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1014    1-104-851-11 s CAPACITOR,TANTALUM 10MF/10V
 C1015    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1016    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V

 C1017    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1018    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1019    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1022    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1023    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V

 C1024    1-164-850-11 s CAPACITOR,CERAMIC 10PF/16V CH
 C1025    1-164-850-11 s CAPACITOR,CERAMIC 10PF/16V CH
 C1026    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1027    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1028    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V

 C1029    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1030    1-165-847-91 s CAPACITOR TANTALUM ELECT 4.7MF
 C1031    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1032    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1033    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF

 C1034    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF
 C1035    1-165-847-91 s CAPACITOR TANTALUM ELECT 4.7MF
 C1036    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF
 C1037    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF
 C1038    1-165-811-11 s CAPCITOR CHIP CERAMIC 22MF B

 C1039    1-165-811-11 s CAPCITOR CHIP CERAMIC 22MF B
 C1040    1-165-811-11 s CAPCITOR CHIP CERAMIC 22MF B
 C1041    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1042    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF
 C1043    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF

 C1044    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1045    1-119-751-11 s CAPACITOR,TANTALUM 22MF/16V
 C1046    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1047    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1048    1-164-882-11 s CAPACITOR,CERAMIC 220PF/16V CH

 C1049    1-164-882-11 s CAPACITOR,CERAMIC 220PF/16V CH
 C1050    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1051    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF
 C1052    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF
 C1053    1-164-943-11 s CAPACITOR,CHIP CERAMIC 0.01MF

 C1054    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1055    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1056    1-135-366-11 s CAPACITOR ELECT 100MF (SMD)
 C1057    1-115-670-11 s CAPACITOR ELECT 220MF/35V(CHIP
 C1058    1-127-573-11 s CAPACITOR,CERAMIC 1MFB(2012)

 C1059    1-125-777-11 s CAPACITOR CERAMIC 0.1MF/10V
 C1060    1-135-366-11 s CAPACITOR ELECT 100MF (SMD)
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(MDR-19 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C1061	1-135-366-11	s	CAPACITOR ELECT 100MF (SMD)
C1062	1-135-366-11	s	CAPACITOR ELECT 100MF (SMD)
C1063	1-135-366-11	s	CAPACITOR ELECT 100MF (SMD)
C1064	1-135-366-11	s	CAPACITOR ELECT 100MF (SMD)
CN1001	1-691-591-11	o	PIN,CONNECTOR (8P)(SMD)(1.5MM)
CN1002	1-770-620-21	s	PIN, CONNECTOR 3P
CN1003	1-774-710-41	o	CONNECTOR, BOARD TO BOARD 20P
CN1004	1-573-290-21	s	PIN,CONNECTOR (4P)(SMD)(1.5MM)
CN1005	1-766-342-21	s	CONNECTOR, FFC/FPC (ZIF) 12P
CN1006	1-766-346-21	s	CONNECTOR, FFC/FPC (LIF) 16P
CN1007	1-766-353-21	s	CONNECTOR, FFC/FPC 23P
D1001	8-719-072-83	s	DIODE MBRS340T3
D1002	8-719-072-83	s	DIODE MBRS340T3
D1003	8-719-072-83	s	DIODE MBRS340T3
D1004	8-719-079-89	s	DIODE SML-020MDT-T86
D1005	8-719-060-99	s	LED SML-210MTT86
FB1001	1-414-226-21	s	INDUCTOR, FERRITE BEAD
FB1002	1-414-226-21	s	INDUCTOR, FERRITE BEAD
FB1003	1-414-226-21	s	INDUCTOR, FERRITE BEAD
FB1004	1-400-150-11	s	FERRITE, EMI (SMD)
FB1005	1-400-150-11	s	FERRITE, EMI (SMD)
FB1006	1-400-150-11	s	FERRITE, EMI (SMD)
FB1007	1-400-150-11	s	FERRITE, EMI (SMD)
FB1008	1-400-150-11	s	FERRITE, EMI (SMD)
IC1001	8-759-570-19	s	IC LM2596SX-5.0
IC1002	8-759-490-69	s	IC LM2596SX-3.3
IC1003	8-759-531-95	s	IC LM2596SX-ADJ
IC1004	6-700-076-01	s	IC S-8423BBFS-T2
IC1006	8-759-464-95	s	IC AK6420AF-E2
IC1007	8-759-523-94	s	IC TC74VHC32FT(EL)
IC1008	8-759-523-02	s	IC TC74HC4053AFT(EL)
IC1009	8-759-713-92	s	IC MPC17A29ZVMEL
IC1010	8-759-713-92	s	IC MPC17A29ZVMEL
IC1011	8-759-337-40	s	IC NJM2904V(TE2)
IC1012	8-759-572-28	s	IC NJU7016R
IC1013	8-759-475-35	s	IC TC74LCX04FT(EL)
IC1014	8-759-075-66	s	IC TA75S01F
IC1015	8-759-271-86	s	IC TC7SH04FU
IC1016	8-759-713-92	s	IC MPC17A29ZVMEL
IC1017	8-759-257-96	s	IC TC7S14FU (TE85R)
L1001	1-414-993-21	s	INDUCTOR (POWER) 47UH
L1002	1-469-774-21	s	INDUCTOR 22UH
L1003	1-414-993-21	s	INDUCTOR (POWER) 47UH
L1004	1-414-754-11	s	INDUCTOR 10.0UH
L1005	1-414-754-11	s	INDUCTOR 10.0UH
L1006	1-414-754-11	s	INDUCTOR 10.0UH
L1007	1-412-058-11	s	INDUCTOR,SMALL TYPE 10UH
L1008	1-412-058-11	s	INDUCTOR,SMALL TYPE 10UH
L1009	1-414-754-11	s	INDUCTOR 10.0UH
Q1001	8-729-928-81	s	TRANSISTOR DTC144EE
R1001	1-208-695-11	s	RESISTOR CHIP 3.3K 1/16W(1005)
R1002	1-208-675-11	s	RESISTOR CHIP 470 1/16W (1005)
R1003	1-218-977-11	s	RESISTOR,CHIP 100K 1/16W(1005)
R1004	1-218-977-11	s	RESISTOR,CHIP 100K 1/16W(1005)
R1005	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1006	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W

(MDR-19 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R1008	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1009	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1010	1-218-961-11	s	RESISTOR, CHIP 4.7K 1/16W
R1011	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1012	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1013	1-218-973-11	s	RESISTOR,CHIP 47K 1/16W (1005)
R1014	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1015	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1016	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1017	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1018	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1019	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1020	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1021	1-218-977-11	s	RESISTOR,CHIP 100K 1/16W(1005)
R1022	1-218-979-11	s	RESISTOR, CHIP 150K
R1023	1-218-979-11	s	RESISTOR, CHIP 150K
R1024	1-218-977-11	s	RESISTOR,CHIP 100K 1/16W(1005)
R1025	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1026	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1027	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1028	1-218-953-11	s	RESISTOR, CHIP 1K 1/16W
R1029	1-218-953-11	s	RESISTOR, CHIP 1K 1/16W
R1030	1-218-990-11	s	RESISTOR,CHIP 0 1/16W (1005)
R1031	1-218-990-11	s	RESISTOR,CHIP 0 1/16W (1005)
R1032	1-208-939-11	s	RESISTOR, CHIP 150K (1005)
R1033	1-208-683-11	s	RESISTOR CHIP 1K 1/16W (1005)
R1034	1-208-683-11	s	RESISTOR CHIP 1K 1/16W (1005)
R1035	1-208-939-11	s	RESISTOR, CHIP 150K (1005)
R1036	1-208-703-11	s	RESISTOR,CHIP 6.8K 1/16W(1005)
R1037	1-208-703-11	s	RESISTOR,CHIP 6.8K 1/16W(1005)
R1038	1-218-831-11	s	RESISTOR, CHIP 220 1/10W(1608)
R1039	1-218-831-11	s	RESISTOR, CHIP 220 1/10W(1608)
R1040	1-218-831-11	s	RESISTOR, CHIP 220 1/10W(1608)
R1041	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1042	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1043	1-208-675-11	s	RESISTOR CHIP 470 1/16W (1005)
R1045	1-218-977-11	s	RESISTOR,CHIP 100K 1/16W(1005)
R1046	1-218-990-11	s	RESISTOR,CHIP 0 1/16W (1005)
R1047	1-218-990-11	s	RESISTOR,CHIP 0 1/16W (1005)
R1048	1-218-945-11	s	RESISTOR,CHIP 220 1/16W(1005)
R1049	1-218-945-11	s	RESISTOR,CHIP 220 1/16W(1005)
R1050	1-218-985-11	s	RESISTOR CHIP 470K 1/16W(1005)
S1001	1-771-795-11	s	SWITCH, SLIDE
TH1001 ⚠	1-803-150-22	s	THERMISTOR, POSITIVE
TH1002 ⚠	1-803-150-22	s	THERMISTOR, POSITIVE
TP1001	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1002	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1003	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1004	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1005	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1006	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1007	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1008	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1009	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1010	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1011	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP1012	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)

(MDR-19 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
TP1013	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
X1001	1-767-205-21	s	VIBRATOR, CRYSTAL

MDR-20 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8345-349-A	s	MOUNTED CIRCUIT BOARD, MDR-20
C1101	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1102	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1103	1-165-847-91	s	CAPACITOR TANTALUM ELECT 4.7MF
C1104	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1105	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1106	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1107	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1108	1-165-847-91	s	CAPACITOR TANTALUM ELECT 4.7MF
C1109	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1110	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1111	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1112	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1113	1-127-692-11	s	CAP, CHIP CERAMIC 10MF B 3216
C1114	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1115	1-127-692-11	s	CAP, CHIP CERAMIC 10MF B 3216
C1116	1-127-692-11	s	CAP, CHIP CERAMIC 10MF B 3216
C1117	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1118	1-119-751-11	s	CAPACITOR,TANTALUM 22MF/16V
C1119	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1120	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1121	1-164-882-11	s	CAPACITOR,CERAMIC 220PF/16V CH
C1122	1-164-882-11	s	CAPACITOR,CERAMIC 220PF/16V CH
C1123	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1124	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1125	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1126	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C1127	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1128	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C1129	1-127-692-11	s	CAP, CHIP CERAMIC 10MF B 3216
C1130	1-127-692-11	s	CAP, CHIP CERAMIC 10MF B 3216
C1131	1-127-692-11	s	CAP, CHIP CERAMIC 10MF B 3216
CN1101	1-573-363-21	s	CONNECTOR,FFC/FPC 23P
CN1102	1-766-346-21	s	CONNECTOR, FFC/FPC (LIF) 16P
IC1101	8-759-523-94	s	IC TC74VHC32FT(EL)
IC1102	8-759-523-02	s	IC TC74HC4053AFT(EL)
IC1103	8-759-713-92	s	IC MPC17A29ZVMEL
IC1104	8-759-713-92	s	IC MPC17A29ZVMEL
IC1105	8-759-337-40	s	IC NJM2904V(TE2)
IC1106	8-759-572-28	s	IC NJU7016R
IC1107	8-759-075-66	s	IC TA75S01F
IC1108	8-759-271-86	s	IC TC7SH04FU
IC1109	8-759-713-92	s	IC MPC17A29ZVMEL
L1101	1-414-754-11	s	INDUCTOR 10.0UH
L1102	1-414-754-11	s	INDUCTOR 10.0UH
L1103	1-412-058-11	s	INDUCTOR,SMALL TYPE 10UH
L1104	1-412-058-11	s	INDUCTOR,SMALL TYPE 10UH
L1105	1-414-754-11	s	INDUCTOR 10.0UH
PH1101	8-749-016-83	s	IC GP1S092HCPI
PH1102	8-749-016-83	s	IC GP1S092HCPI
R1101	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1102	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1103	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1104	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1105	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1106	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W

(MDR-20 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R1107	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R1108	1-218-977-11	s	RESISTOR,CHIP 100K 1/16W(1005)
R1109	1-218-979-11	s	RESISTOR, CHIP 150K
R1110	1-218-979-11	s	RESISTOR, CHIP 150K
R1111	1-218-977-11	s	RESISTOR,CHIP 100K 1/16W(1005)
R1112	1-218-947-11	s	RESISTOR, CHIP 330 1/16W
R1113	1-218-973-11	s	RESISTOR,CHIP 47K 1/16W (1005)
R1114	1-218-947-11	s	RESISTOR, CHIP 330 1/16W
R1115	1-218-953-11	s	RESISTOR, CHIP 1K 1/16W
R1116	1-218-953-11	s	RESISTOR, CHIP 1K 1/16W
R1117	1-218-973-11	s	RESISTOR,CHIP 47K 1/16W (1005)
R1118	1-208-683-11	s	RESISTOR CHIP 1K 1/16W (1005)
R1119	1-208-683-11	s	RESISTOR CHIP 1K 1/16W (1005)
R1120	1-208-939-11	s	RESISTOR, CHIP 150K (1005)
R1121	1-208-939-11	s	RESISTOR, CHIP 150K (1005)
R1122	1-208-703-11	s	RESISTOR,CHIP 6.8K 1/16W(1005)
R1123	1-208-703-11	s	RESISTOR,CHIP 6.8K 1/16W(1005)

SE-656 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8345-348-A	s	MOUNTED CIRCUIT BOARD, SE-656
CN1201	1-573-290-21	s	PIN,CONNECTOR (4P)(SMD)(1.5MM)
PH1201	8-749-016-83	s	IC GP1S092HCPI
PH1202	8-749-016-83	s	IC GP1S092HCPI
R1201	1-218-947-11	s	RESISTOR, CHIP 330 1/16W
R1202	1-218-973-11	s	RESISTOR,CHIP 47K 1/16W (1005)
R1203	1-218-947-11	s	RESISTOR, CHIP 330 1/16W
R1204	1-218-973-11	s	RESISTOR,CHIP 47K 1/16W (1005)

SY-303 BOARD
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*UC:[SNC-RZ30N(UC)]
*CE:[SNC-RZ30P(CE)]

Ref. No. or Q'ty	Part No.	SP	Description
1pc *UC	A-8279-807-A	s	MOUNTED CIRCUIT BOARD, SY-303(N)(RP)
1pc *CE	A-8279-808-A	s	MOUNTED CIRCUIT BOARD, SY-303(P)(RP)
BT001 ⚠	1-528-944-11	s	BATTERY, LITHIUM (SECONDARY)
C001	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C002	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C003	1-127-820-11	s	CAPACITOR, SQUARE CHIP 4.7MF
C004	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C005	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C006	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C007	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C008	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C009	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C010	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C011	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C012	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C013	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C014	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C015	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C016	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C017	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C018	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C019	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C020	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C021	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C022	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C023	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C024	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C025	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C026	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C027	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C028	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C029	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C030	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C031	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C032	1-115-412-11	s	CAPACITOR,CERAMIC 680PF/25V CH
C033	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C034	1-164-935-11	s	CAPACITOR,CHIP CERAMIC 470PF
C035	1-164-935-11	s	CAPACITOR,CHIP CERAMIC 470PF
C036	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C037	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C038	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C039	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C040	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C041	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C042	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C043	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C044	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C045	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C046	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C047	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C048	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C049	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C050	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C051	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C052	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V

(SY-303 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C053	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C054	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C055	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C056	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C057	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C058	1-164-846-11	s	CAPACITOR,CHIP CERAMIC 6PF/16V
C059	1-127-573-11	s	CAPACITOR,CERAMIC 1MFB(2012)
C101	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C102	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C103	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C104	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C105	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C106	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C107	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C108	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C109	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C110	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C111	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C112	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C113	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C114	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C115	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C116	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C117	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C118	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C119	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C120	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C121	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C122	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C123	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C124	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C125	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C126	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C127	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C128	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C129	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C130	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C131	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C132	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C133	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C134	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C135	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C136	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C137	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C138	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C139	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C140	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C141	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C142	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C143	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C144	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C145	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C146	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C147	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C148	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C149	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C150	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C151	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C152	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V

(SY-303 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C153	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C154	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C155	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C201	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C202	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C203	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C204	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C205	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C206	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C207	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C208	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C209	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C210	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C211	1-164-935-11	s	CAPACITOR,CHIP CERAMIC 470PF
C212	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C213	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C214	1-126-399-11	s	CAPACITOR ELECT 10MF/35V(CHIP)
C215	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C216	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C217	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C218	1-126-399-11	s	CAPACITOR ELECT 10MF/35V(CHIP)
C219	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C220	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C221	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C222	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C223	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C224	1-126-399-11	s	CAPACITOR ELECT 10MF/35V(CHIP)
C225	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C226	1-164-935-11	s	CAPACITOR,CHIP CERAMIC 470PF
C227	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C228	1-126-399-11	s	CAPACITOR ELECT 10MF/35V(CHIP)
C229	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C230	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C231	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C232	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C301	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C302	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C303	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C304	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C305	1-164-937-11	s	CAPACITOR,CHIP CERAMIC 1000PF
C306	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C307	1-164-937-11	s	CAPACITOR,CHIP CERAMIC 1000PF
C308	1-164-937-11	s	CAPACITOR,CHIP CERAMIC 1000PF
C309	1-164-937-11	s	CAPACITOR,CHIP CERAMIC 1000PF
C310	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C311	1-164-156-11	s	CAPACITOR,CERAMIC 0.1MF/25V F
C312	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C313	1-164-156-11	s	CAPACITOR,CERAMIC 0.1MF/25V F
C314	1-164-156-11	s	CAPACITOR,CERAMIC 0.1MF/25V F
C315	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C316	1-164-156-11	s	CAPACITOR,CERAMIC 0.1MF/25V F
C317	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C318	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C319	1-125-889-11	s	CAPACITOR, C.CERAMIC 2.2MF
C320	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C321	1-127-573-11	s	CAPACITOR,CERAMIC 1MFB(2012)
C322	1-162-970-11	s	CAPACITOR CERAMIC 0.01MF/25V B
C323	1-164-937-11	s	CAPACITOR,CHIP CERAMIC 1000PF
C324	1-164-937-11	s	CAPACITOR,CHIP CERAMIC 1000PF

(SY-303 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C325	1-164-882-11	s	CAPACITOR,CERAMIC 220PF/16V CH
C326	1-164-850-11	s	CAPACITOR,CERAMIC 10PF/16V CH
C327	1-164-850-11	s	CAPACITOR,CERAMIC 10PF/16V CH
C328	1-115-412-11	s	CAPACITOR,CERAMIC 680PF/25V CH
C401	1-125-777-11	s	CAPACITOR CERAMIC 0.1MF/10V
C402	1-164-943-11	s	CAPACITOR,CHIP CERAMIC 0.01MF
C403	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C404	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C405	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C406	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C407	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C408	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C409	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C410	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C411	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C412	1-128-536-11	s	CAPACITOR ERECT 100MF/25V(CHIP
C413	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C414	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C415	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C417	1-115-670-11	s	CAPACITOR ELECT 220MF/35V(CHIP
C418	1-115-670-11	s	CAPACITOR ELECT 220MF/35V(CHIP
C419	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C420	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C421	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C422	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C423	1-164-866-11	s	CAPACITOR,CHIP CERAMIC 47PF/16
C424	1-164-156-11	s	CAPACITOR,CERAMIC 0.1MF/25V F
CN001	1-779-772-11	s	CONENCTOR 13P
CN301	1-774-741-11	s	JACK, DC
CN302	1-816-762-11	s	JACK, MODULAR(PULSE TRANSFORM)
CN303	1-784-074-11	s	CONNECTOR, BNC
CN304	1-816-763-11	s	PIN, CONNECTOR (3.5MM)
CN401	1-691-591-11	o	PIN,CONNECTOR (8P)(SMD)(1.5MM)
CN402	1-764-529-11	s	CONNECTOR, FFC/FPC (ZIF) 22P
CN403	1-764-521-11	o	CONNECTOR, FFC/FPC (ZIF) 12P
CN404	1-764-528-11	s	CONNECTOR, FFC/FPC (ZIF) 21P
D001	8-719-421-27	s	DIODE MA728
D002	8-719-073-01	s	DIODE MA111-(K8).S0
D301	8-719-073-01	s	DIODE MA111-(K8).S0
D302	8-719-073-01	s	DIODE MA111-(K8).S0
D303	8-719-073-01	s	DIODE MA111-(K8).S0
D304	8-719-073-01	s	DIODE MA111-(K8).S0
D305	8-719-073-01	s	DIODE MA111-(K8).S0
D306	8-719-037-54	s	DIODE RD30SB-T1
D307	8-719-037-54	s	DIODE RD30SB-T1
D308	8-719-037-54	s	DIODE RD30SB-T1
D309	8-719-037-54	s	DIODE RD30SB-T1
D310	8-719-037-54	s	DIODE RD30SB-T1
D311	8-719-037-54	s	DIODE RD30SB-T1
D312	8-719-161-05	s	DIODE RD8.2SB-T1
D313	8-719-037-54	s	DIODE RD30SB-T1
D314	8-719-037-54	s	DIODE RD30SB-T1
D315	8-719-037-54	s	DIODE RD30SB-T1
D316	8-719-037-54	s	DIODE RD30SB-T1
D317	8-719-037-25	s	DIODE RD13SB-T1
D318	8-719-037-25	s	DIODE RD13SB-T1
D319	8-719-037-25	s	DIODE RD13SB-T1
D320	8-719-037-25	s	DIODE RD13SB-T1

(SY-303 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D321	8-719-037-54	s	DIODE RD30SB-T1
D322	8-719-037-54	s	DIODE RD30SB-T1
D323	8-719-037-54	s	DIODE RD30SB-T1
D324	8-719-037-54	s	DIODE RD30SB-T1
D325	8-719-037-54	s	DIODE RD30SB-T1
D326	8-719-037-54	s	DIODE RD30SB-T1
D327	8-719-037-54	s	DIODE RD30SB-T1
D328	8-719-037-54	s	DIODE RD30SB-T1
D329	8-719-037-54	s	DIODE RD30SB-T1
D330	8-719-037-54	s	DIODE RD30SB-T1
D331	8-719-161-05	s	DIODE RD8.2SB-T1
D332	8-719-037-25	s	DIODE RD13SB-T1
D333	8-719-037-25	s	DIODE RD13SB-T1
D334	8-719-037-25	s	DIODE RD13SB-T1
D335	8-719-037-25	s	DIODE RD13SB-T1
FB001	1-500-283-11	s	INDUCTOR, FERRITE BEAD
FB002	1-500-283-11	s	INDUCTOR, FERRITE BEAD
FB003	1-500-283-11	s	INDUCTOR, FERRITE BEAD
FB004	1-500-283-11	s	INDUCTOR, FERRITE BEAD
FB301	1-400-150-11	s	FERRITE, EMI (SMD)
FB302	1-500-282-11	s	INDUCTOR, FERRITE BEAD
FB303	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB304	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB305	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB306	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB307	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB308	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB309	1-500-425-11	s	BEAD, FERRITE
FB310	1-500-425-11	s	BEAD, FERRITE
FB311	1-500-425-11	s	BEAD, FERRITE
FB312	1-500-425-11	s	BEAD, FERRITE
FB313	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB314	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB315	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB316	1-414-229-11	s	INDUCTOR, FERRITE BEAD
FB317	1-400-150-11	s	FERRITE, EMI (SMD)
FB318	1-400-150-11	s	FERRITE, EMI (SMD)
FB401	1-414-229-11	s	INDUCTOR, FERRITE BEAD
IC001	8-759-343-88	s	IC DS1302Z
IC002	8-759-437-39	s	IC MB3771PF-ER
IC003	8-759-653-63	s	IC S-817A36ANB-CUZ-T2
IC004	8-759-679-54	s	IC SN74LVC14APWR
IC006	8-759-829-30	s	IC CY2305SC-1HT
IC007	6-702-689-01	s	IC HD6417615ARF
IC008	6-702-511-01	s	IC MT48LC8M16A2TG-75-Y95W
IC009	6-802-199-01	s	IC E28F320J3A110-RZ30UV1.00
IC010	6-702-511-01	s	IC MT48LC8M16A2TG-75-Y95W
IC011	6-802-200-01	s	IC E28F320J3A110-RZ30LV1.00
IC101	8-759-573-65	s	IC IDT71V016S20PHAU-TL
IC102	6-702-238-11	s	IC HY57V643220CT-7TR
IC103	6-802-103-01	s	IC UPD65454GL-231-NMU
IC104	8-759-562-02	s	IC MD36053X-30
IC201	6-702-690-01	s	IC MR-SHPC-02V1
IC202	8-759-693-94	s	IC TPS2205IDBR
IC301	6-702-691-01	s	IC BCM5221A4KPT
IC302	8-759-058-58	s	IC TC7S04FU-TE85R
IC303	8-759-484-69	s	IC MAX3221CAE
IC304	6-702-671-01	s	IC MAX3483CSA-TG068

(SY-303 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC401	8-759-475-35	s	IC TC74LCX04FT(EL)
L401	1-414-751-11	s	INDUCTOR 1.0UH
PH301	8-749-011-36	s	PHOTO COUPLER TLP181 (GR-TPR)
PH302	8-749-011-36	s	PHOTO COUPLER TLP181 (GR-TPR)
PH303	8-749-011-36	s	PHOTO COUPLER TLP181 (GR-TPR)
Q301	8-729-928-54	s	TRANSISTOR DTA123JE
Q302	8-729-928-54	s	TRANSISTOR DTA123JE
Q303	6-550-112-01	s	TRANSISTOR TPC8108(TE12L)
R001	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R002	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R003	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R004	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R005	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R006	1-218-939-11	s	RESISTOR, CHIP 68 1/16W (1005)
R007 *CE	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R008	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R009	1-208-699-11	s	RESISTOR,CHIP 4.7K 1/16W(1005)
R010	1-208-695-11	s	RESISTOR CHIP 3.3K 1/16W(1005)
R011	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R012	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R013	1-208-695-11	s	RESISTOR CHIP 3.3K 1/16W(1005)
R014	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R015	1-218-961-11	s	RESISTOR, CHIP 4.7K 1/16W
R016	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R017	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R018	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R019	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R020	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R021	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R022	1-218-939-11	s	RESISTOR, CHIP 68 1/16W (1005)
R023	1-218-939-11	s	RESISTOR, CHIP 68 1/16W (1005)
R024	1-218-939-11	s	RESISTOR, CHIP 68 1/16W (1005)
R025	1-218-939-11	s	RESISTOR, CHIP 68 1/16W (1005)
R026	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R027	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R028	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R029	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R030	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R031	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R032	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R033	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R034	1-208-699-11	s	RESISTOR,CHIP 4.7K 1/16W(1005)
R035	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R036	1-218-939-11	s	RESISTOR, CHIP 68 1/16W (1005)
R101	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R102	1-218-939-11	s	RESISTOR, CHIP 68 1/16W (1005)
R103	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R104	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R105	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R106	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R107	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R108	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R109	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R110	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R111	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R112	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R204	1-218-990-11	s	RESISTOR,CHIP 0 1/16W (1005)

(SY-303 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R205	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R206	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R301	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R302	1-218-961-11	s	RESISTOR, CHIP 4.7K 1/16W
R303	1-208-675-11	s	RESISTOR CHIP 470 1/16W (1005)
R304	1-208-675-11	s	RESISTOR CHIP 470 1/16W (1005)
R305	1-218-935-11	s	RESISTOR,CHIP 33 1/16W (1005)
R306	1-218-935-11	s	RESISTOR,CHIP 33 1/16W (1005)
R307	1-208-703-11	s	RESISTOR,CHIP 6.8K 1/16W(1005)
R308	1-208-703-11	s	RESISTOR,CHIP 6.8K 1/16W(1005)
R309	1-208-703-11	s	RESISTOR,CHIP 6.8K 1/16W(1005)
R310	1-218-955-11	s	RESISTOR, CHIP 1.5K
R311	1-218-961-11	s	RESISTOR, CHIP 4.7K 1/16W
R312	1-220-281-11	s	RESISTOR CHIP 4.7K 1/4W (3225)
R313	1-220-281-11	s	RESISTOR CHIP 4.7K 1/4W (3225)
R314	1-220-281-11	s	RESISTOR CHIP 4.7K 1/4W (3225)
R315	1-220-281-11	s	RESISTOR CHIP 4.7K 1/4W (3225)
R316	1-220-281-11	s	RESISTOR CHIP 4.7K 1/4W (3225)
R317	1-220-281-11	s	RESISTOR CHIP 4.7K 1/4W (3225)
R318	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R319	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R320	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R321	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R322	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R323	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R324	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R325	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R326	1-218-941-11	s	RESISTOR,CHIP 100 1/16W (1005)
R327	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R328	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R329	1-220-258-11	s	RESISTOR, CHIP 100 1/4W (3225)
R330	1-208-671-11	s	RESISTOR CHIP 330 1/16W (1005)
R331	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R332	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R333	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R334	1-218-969-11	s	RESISTOR,CHIP 22K 1/16W (1608)
R335	1-218-957-11	s	RESISTOR,CHIP 2.2K 1/16W(1608)
R336	1-218-965-11	s	RESISTOR, CHIP 10K 1/16W
R337	1-219-493-11	s	RESISTOR, METAL FILM CHIP 22
R401	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R402	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R403	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R405	1-218-989-11	s	RESISTOR,CHIP 1M 1/16W (1005)
R406	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R407	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R408	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R409	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R410	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R411	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R412	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R413	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R414	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R415	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R416	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R417	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R418	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R419	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)
R420	1-208-643-11	s	RESISTOR CHIP 22 1/16W (1005)

(SY-303 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RY301	1-755-379-11	s	RELAY
RY302	1-755-379-11	s	RELAY
S001	1-692-270-41	s	SWITCH, SLIDE
S002	1-572-595-11	s	SWITCH,TACTIL (REFLOW TYPE)
S301	1-554-088-00	s	SWITCH,KEY BOARD
TH301 ⚠	1-762-528-21	s	SWITCH, POLYETHYLENE
TH401 ⚠	1-762-254-21	s	SWITCH, POLY
TP001	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP002	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP401	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP402	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP403	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP404	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP405	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
TP406	1-535-757-11	s	CHIP, CHECKER (CONNECTOR)
X001	1-760-458-21	s	VIBRATOR, CRYSTAL
X002	1-781-855-21	s	OSCILLATOR, CRYSTAL
X301	1-781-345-11	s	OSCILLATOR, CRYSTAL

6-4. Frame

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-824-542-11	s	CABLE, FLEXIBLE FLAT
1pc	1-824-544-11	s	CABLE, FLEXIBLE FLAT (12 CORE)
2pcs	1-824-898-11	s	CABLE, FLEXIBLE FLAT (16 CORE)
1pc	8-835-739-01	s	MOTOR, DC SPZ11A/J-N
1pc	8-835-740-02	s	MOTOR, DC SPZ12A/J-N

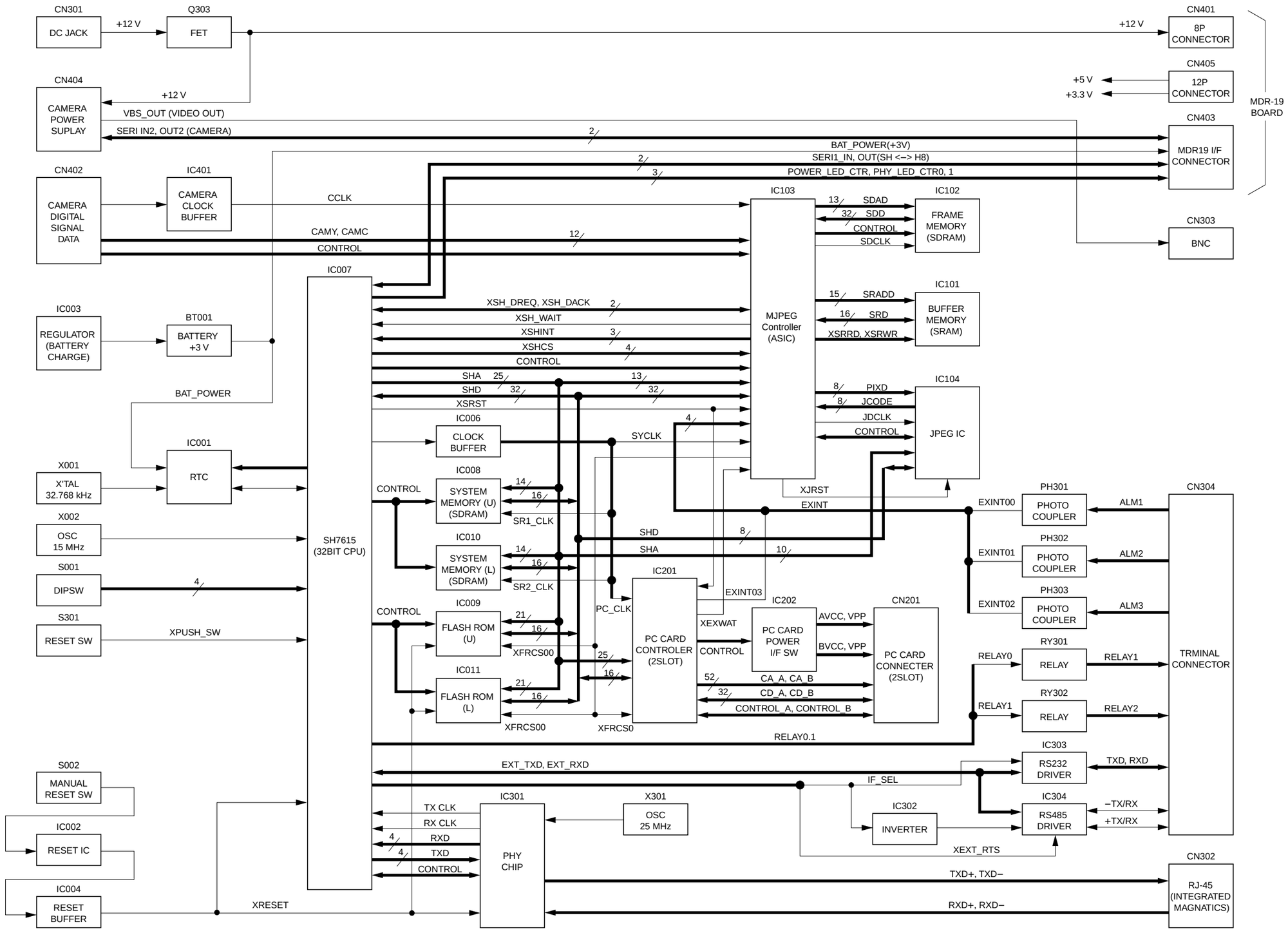
6-5. Packing Materials & Supplied Accessories

PACKING MATERIALS & SUPPLIED ACCESSORIES

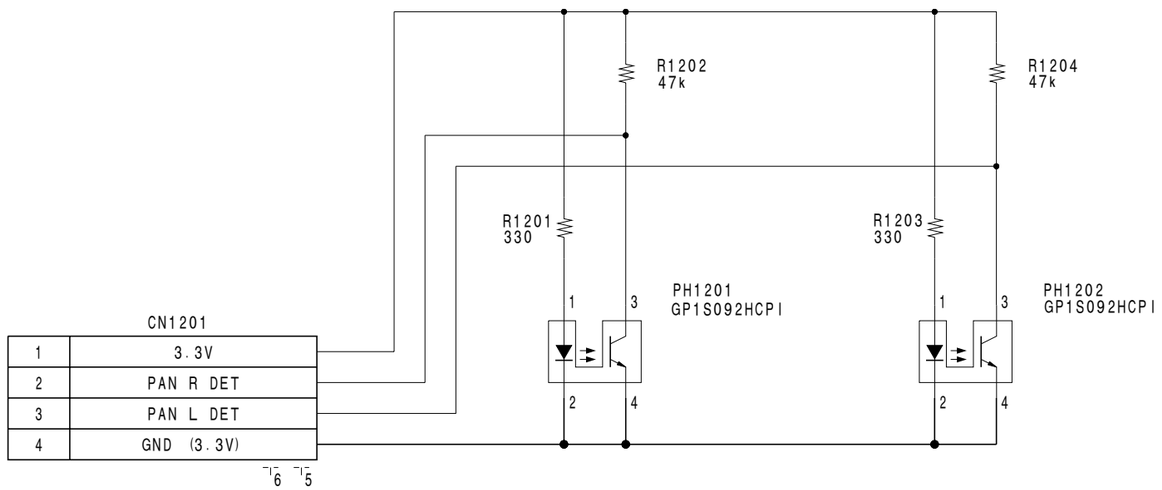
*1:[SNC-RZ30N(UC)]
*2:[SNC-RZ30P(CE)]

Ref. No. or Q'ty	Part No.	SP	Description
2pcs	1-400-061-11	s	CORE, FERRITE (CLAMP FILTER)
1pc ⚠	1-468-626-31	s	ADAPTOR, AC
1pc *2 ⚠	1-575-131-61	s	CORD, POWER
1pc *1 ⚠	1-757-562-21	s	CORD, POWER
1pc	3-620-375-11	s	INSTALLATION MANUAL
1pc *2	3-620-375-21	s	INSTALLATION MANUAL
1pc	3-620-525-01	s	CD-ROM
1pc	3-970-626-01	s	FOOT (TOGETHER PACKING)
1pc	4-075-110-01	o	BAG, PROTECTION
1pc	4-884-982-00	s	SCREW,STEP
7pcs	7-682-947-01	s	SCREW +PSW 3X6

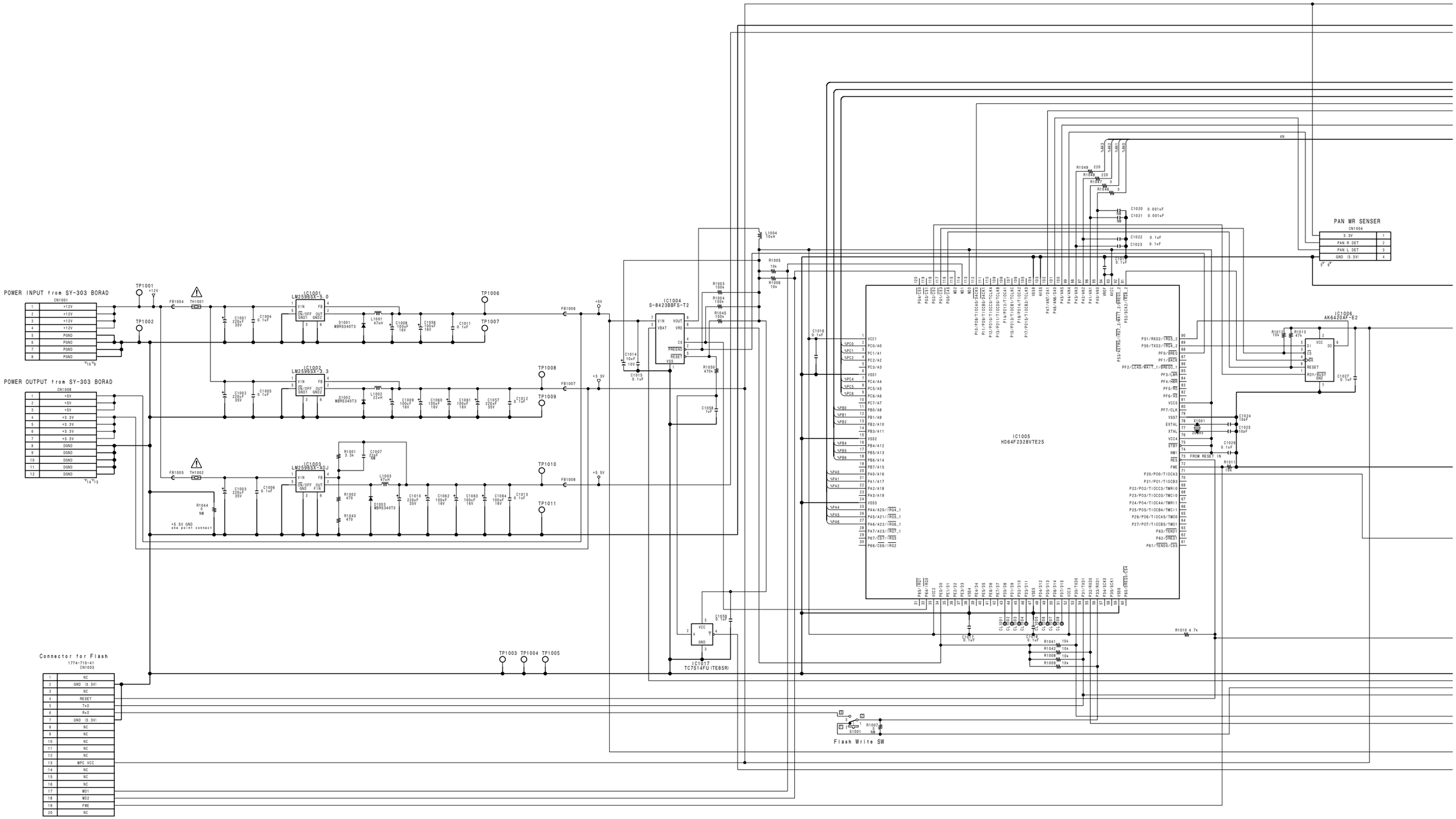
Section 7
Block Diagrams

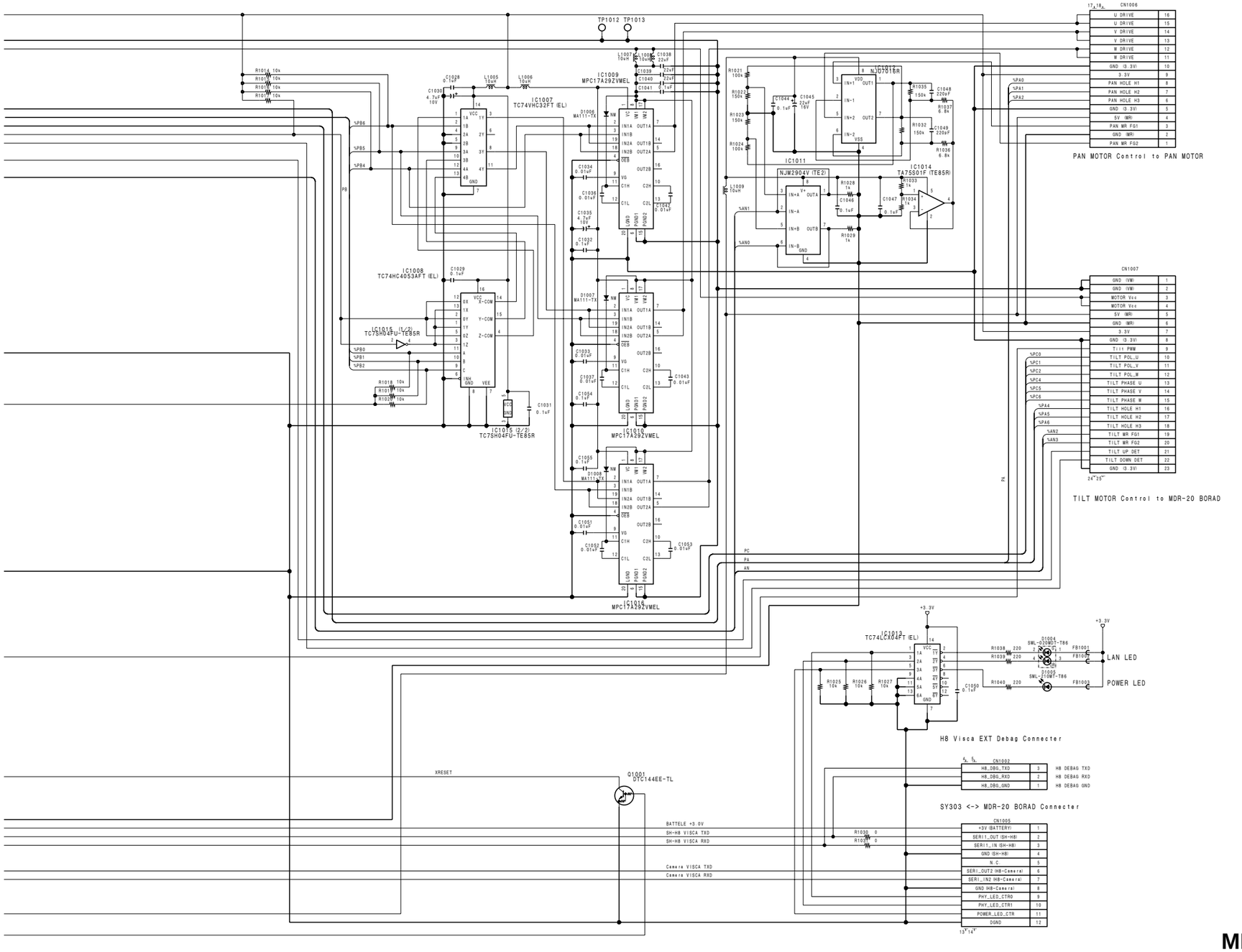


Section 8
Schematic Diagrams



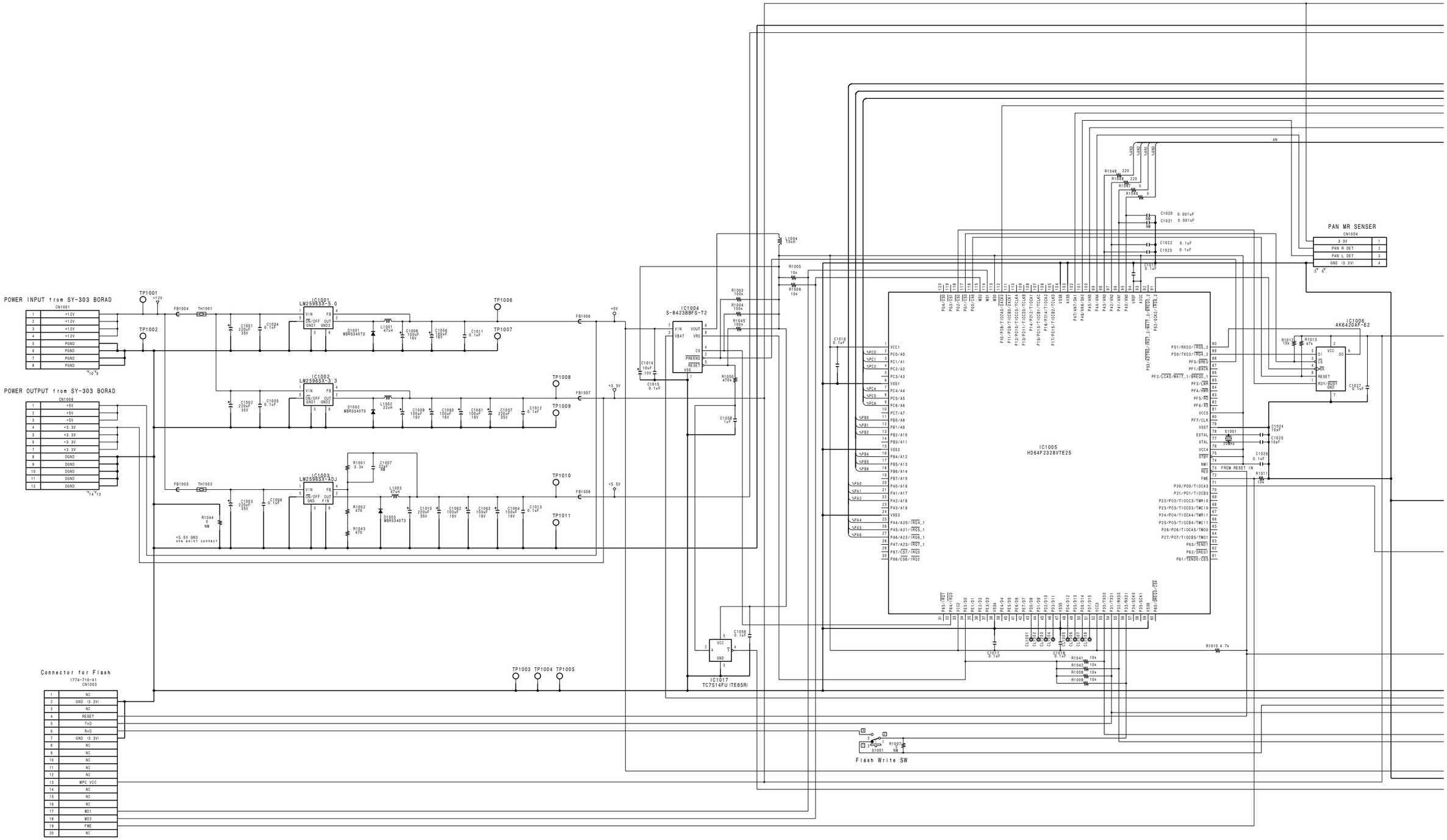
SE-656


POWER INPUT from SY-303 BORAD
CN1001
+12V
PGND
POWER OUTPUT from SY-303 BORAD
CN1008
+5V
+3.3V
DGND
IC1001 LM2596SX-5.0
IC1002 LM2596SX-3.3
IC1003 LM2596SX-ADJ
IC1004 S-8423BBFS-T2
IC1005 HD64F2328VTE25
IC1017 TC7S14FU (TE85R)
IC1096 AK6420AF-E2
PAN MR SENSER
CN1004
3.3V
PAN R DET
PAN L DET
GND (3.3V)
Connector for Flash
1774-710-41
CN1003
NC
GND (3.3V)
RESET
TxD
RxD
MPC VCC
MD1
MD2
FWE
Flash Write SW
S1001
TP1001
TP1002
TP1003
TP1004
TP1005
TP1006
TP1007
TP1008
TP1009
TP1010
TP1011
+12V
+5V
+3.3V
+5.5V
FB1004
FB1005
FB1006
FB1007
FB1008
TH1001
TH1002
+5.5V GND one point connect
FROM RESET IN

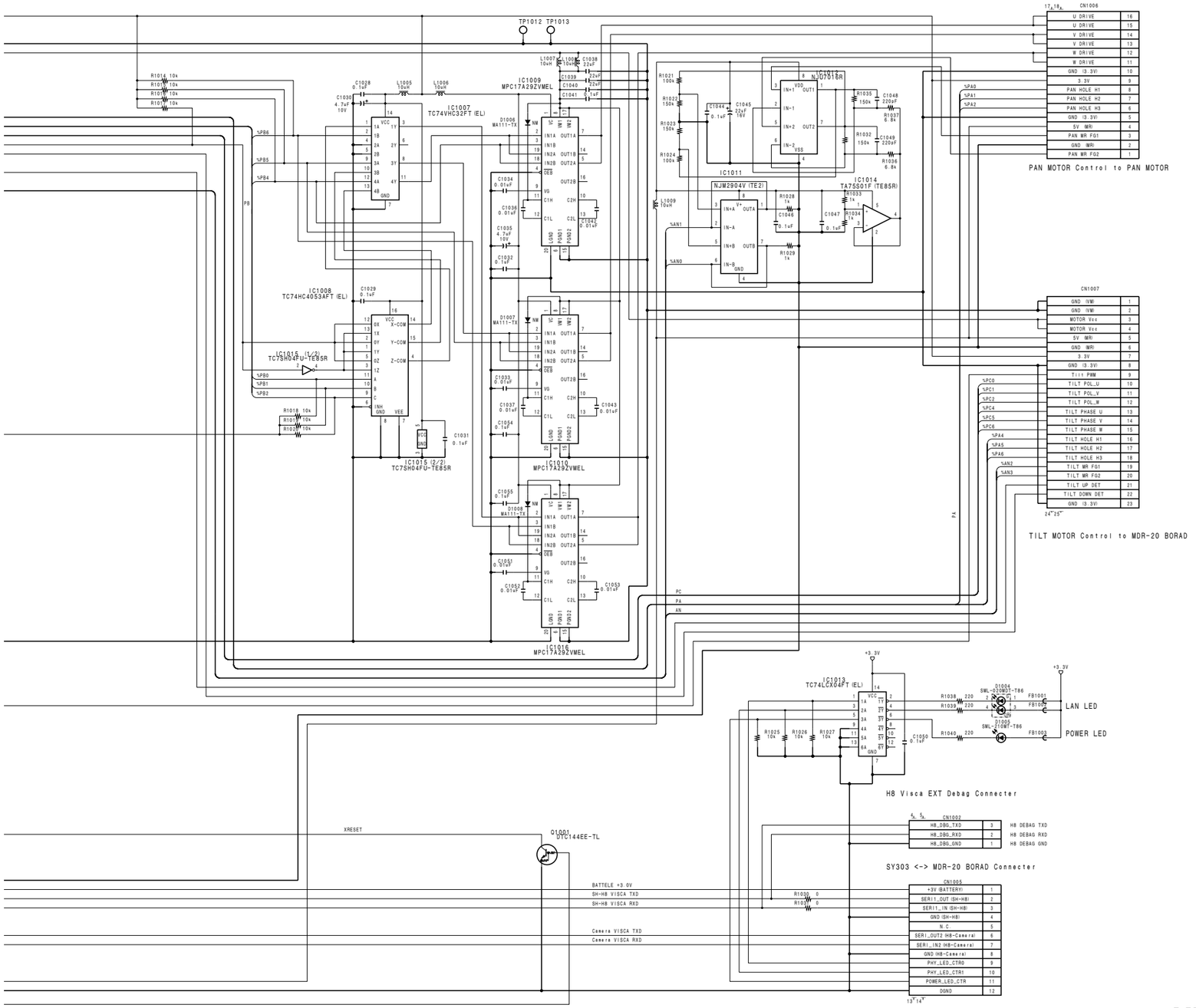

TP1012 TP1013
IC1007 TC74VHC32FT (EL)
IC1008 TC74HC4053AFT (EL)
IC1015 (1/2) TC7SH04FU-TE85R
IC1015 (2/2) TC7SH04FU-TE85R
IC1009 MPC17A29ZVMEL
IC1010 MPC17A29ZVMEL
IC1011 NJM2904V (TE2)
IC1012 NJU7016R
IC1014 TA75S01F (TE85R)
IC1013 TC74LCX04FT (EL)
Q1001 DTC144EE-TL
CN1006
U DRIVE
V DRIVE
W DRIVE
3.3V
PAN HOLE H1
PAN HOLE H2
PAN HOLE H3
5V (WR)
PAN WR FG1
GND (WR)
PAN WR FG2
PAN MOTOR Control to PAN MOTOR
CN1007
GND (VM)
MOTOR Vcc
5V (WR)
GND (WR)
3.3V
GND (3.3V)
Tilt PWM
TILT POL_U
TILT POL_V
TILT POL_W
TILT PHASE U
TILT PHASE V
TILT PHASE W
TILT HOLE H1
TILT HOLE H2
TILT HOLE H3
TILT WR FG1
TILT WR FG2
TILT UP DET
TILT DOWN DET
TILT MOTOR Control to MDR-20 BORAD
LAN LED
POWER LED
H8 Visca EXT Debag Connecter
CN1002
H8_DBG_TXD
H8_DBG_RXD
H8_DBG_GND
H8 DEBAG TXD
H8 DEBAG RXD
H8 DEBAG GND
SY303 <-> MDR-20 BORAD Connecter
CN1005
+3V (BATTERY)
SERI1_OUT (SH-H8)
SERI1_IN (SH-H8)
GND (SH-H8)
N.C.
SERI_OUT2 (H8-Camera)
SERI_IN2 (H8-Camera)
GND (H8-Camera)
PHY_LED_CTR0
PHY_LED_CTR1
POWER_LED_CTR
DGND
XRESET
BATTELE +3.0V
SH-H8 VISCA TXD
SH-H8 VISCA RXD
Camera VISCA TXD
Camera VISCA RXD

MDR-19 (1/2)

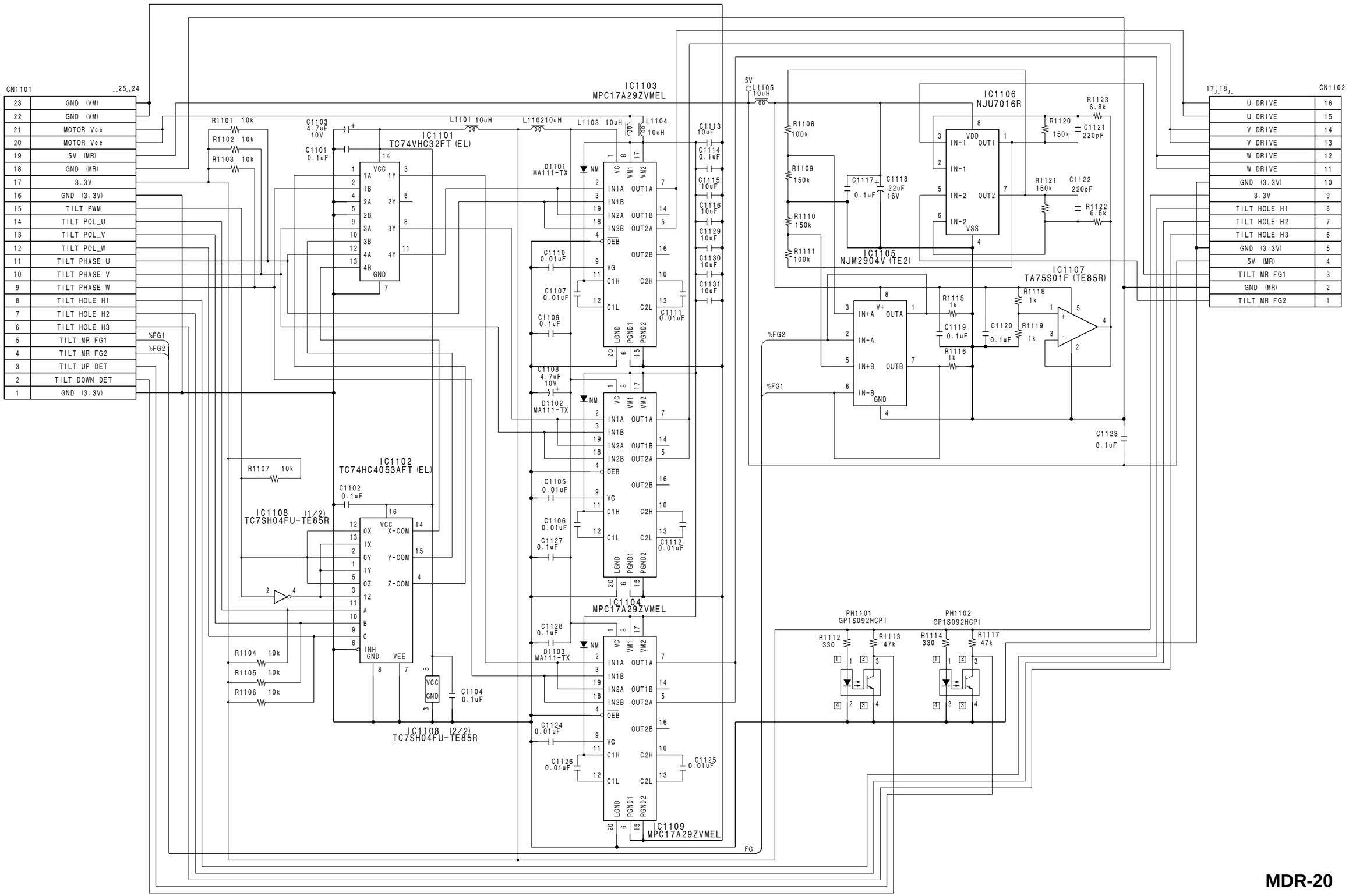
MDR-19 (2/2)

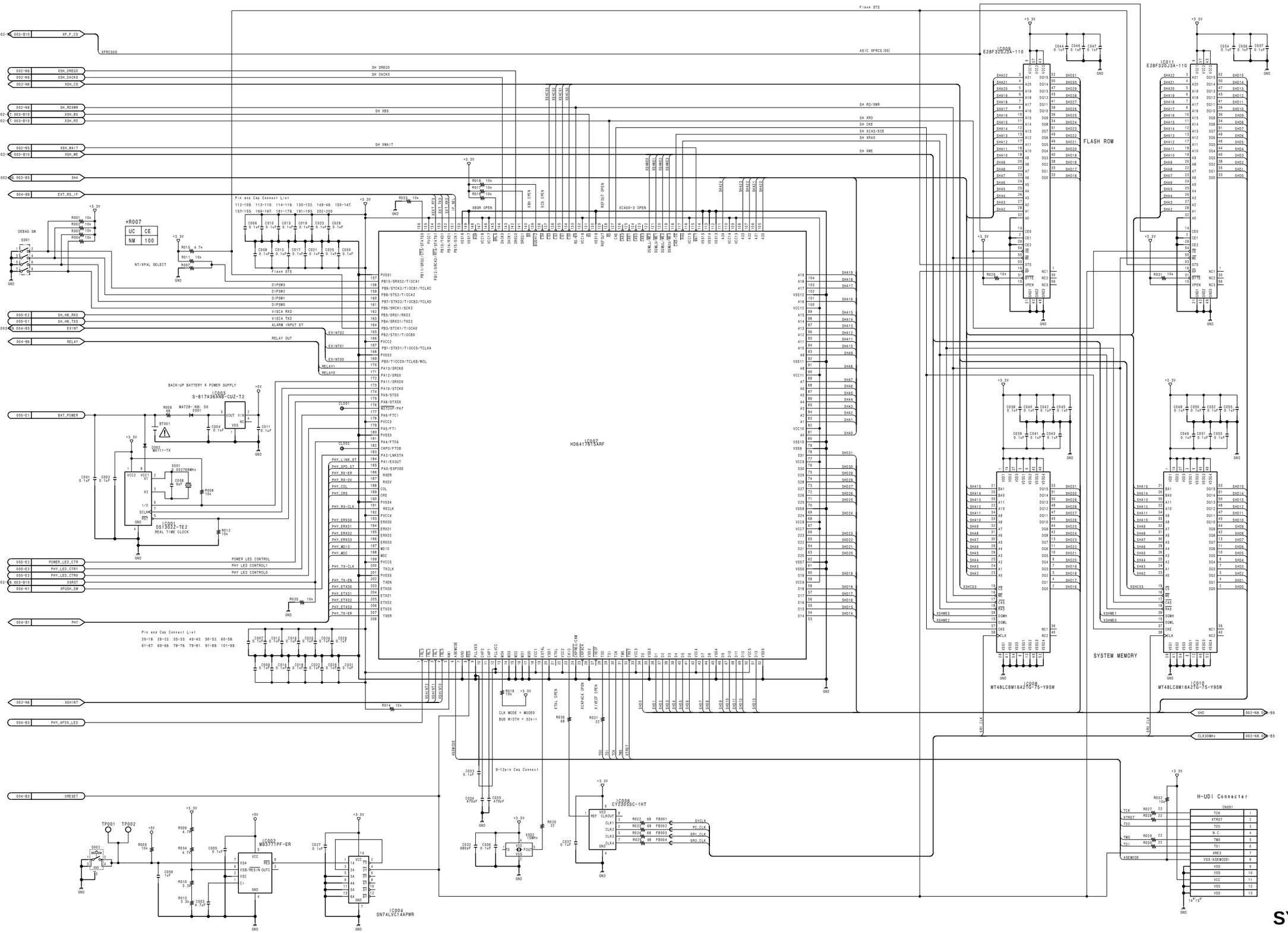

POWER INPUT from SY-303 BORAD
CN1001
POWER OUTPUT from SY-303 BORAD
CN1008
LC1001 LM2596SX-5.0
LC1002 LM2596SX-3.3
LC1003 LM2596SX-ADJ
IC1004 S-8423BBFS-T2
IC1005 HD64F2328VTE25
IC1006 AK6420AF-E2
IC1017 TC7S14FU (TE85R)
PAN MR SENSER
CN1004
3.3V
PAN R DET
PAN L DET
GND (3.3V)
Connector for Flash
1774-710-41
CN1003
NC
GND (3.3V)
RESET
TxD
RxD
MPC VCC
MD1
MD2
FWE
Flash Write SW
FROM RESET IN
+5V
+3.3V
+5.5V
TP1001
TP1002
TP1003
TP1004
TP1005
TP1006
TP1007
TP1008
TP1009
TP1010
TP1011

8-4


TP1012 TP1013
IC1007 TC74VHC32FT (EL)
IC1008 TC74HC4053AFT (EL)
IC1015 (2/2) TC7SH04FU-TE85R
IC1016 (1/2) TC7SH04FU-TE85R
IC1009 MPC17A29ZVMEL
IC1010 MPC17A29ZVMEL
IC1016 MPC17A29ZVMEL
IC1011
IC1012 NJU7018R
IC1013 TC74LCX04FT (EL)
IC1014 TA75S01F (TE85R)
NJM2904V (TE2)
PAN MOTOR Control to PAN MOTOR
TILT MOTOR Control to MDR-20 BORAD
H8 Visca EXT Debag Connecter
SY303 <-> MDR-20 BORAD Connecter
LAN LED
POWER LED
XRESET
BATTELE +3.0V
SH-H8 VISCA TXD
SH-H8 VISCA RXD
Camera VISCA TXD
Camera VISCA RXD

MDR-19 (2/2)

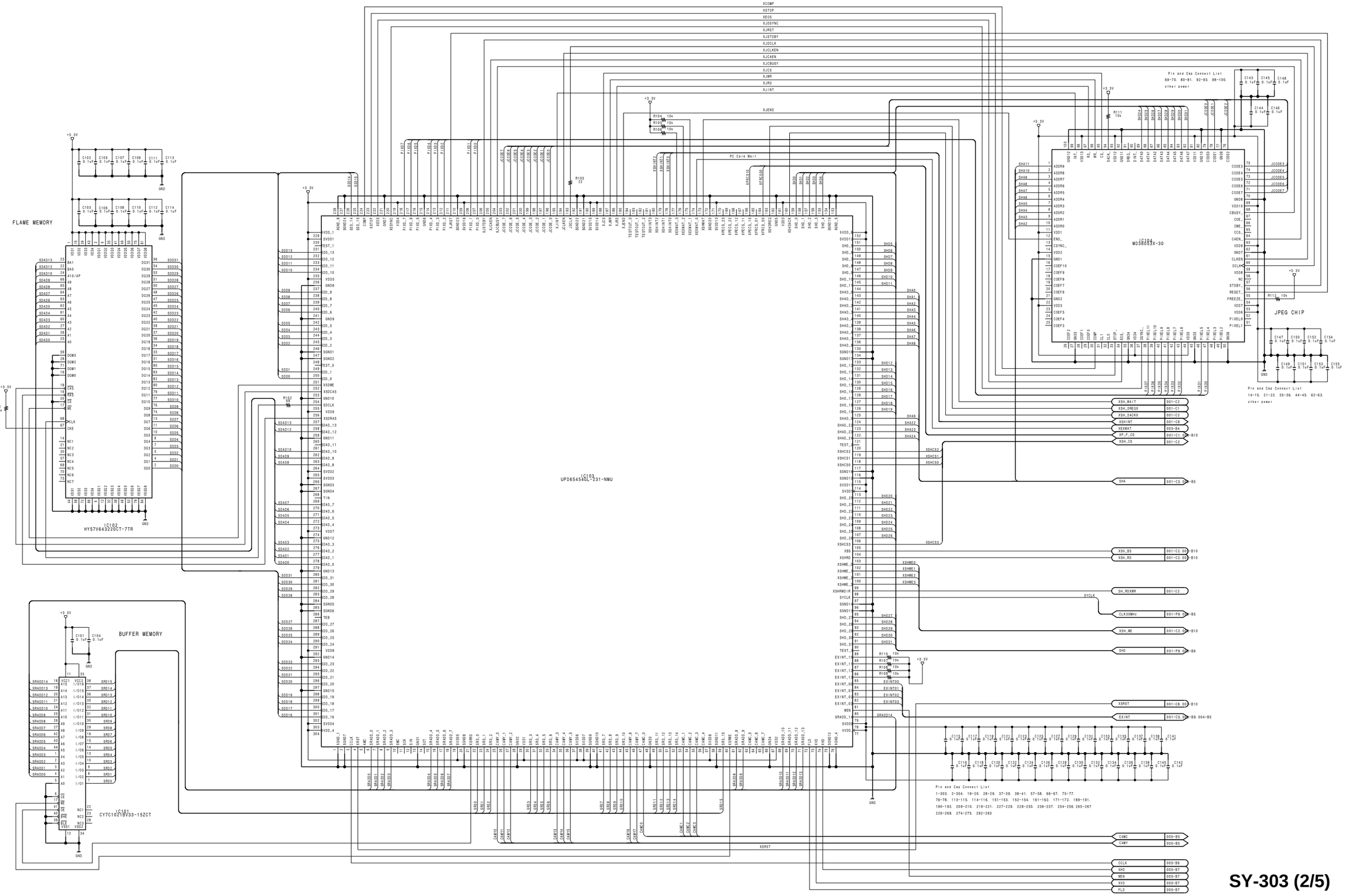

CN1101
23 GND (VM)
22 GND (VM)
21 MOTOR Vcc
20 MOTOR Vcc
19 5V (MR)
18 GND (MR)
17 3.3V
16 GND (3.3V)
15 TILT PWM
14 TILT POL_U
13 TILT POL_V
12 TILT POL_W
11 TILT PHASE U
10 TILT PHASE V
9 TILT PHASE W
8 TILT HOLE H1
7 TILT HOLE H2
6 TILT HOLE H3
5 TILT MR FG1
4 TILT MR FG2
3 TILT UP DET
2 TILT DOWN DET
1 GND (3.3V)
%FG1
%FG2
IC1101 TC74VHC32FT (EL)
IC1102 TC74HC4053AFT (EL)
IC1103 MPC17A29ZVMEL
IC1104 MPC17A29ZVMEL
IC1105 NJM2904V (TE2)
IC1106 NJU7016R
IC1107 TA75S01F (TE85R)
IC1108 (1/2) TC7SH04FU-TE85R
IC1108 (2/2) TC7SH04FU-TE85R
IC1109 MPC17A29ZVMEL
PH1101 GP1S092HCPI
PH1102 GP1S092HCPI
5V
FG
CN1102
U DRIVE 16
U DRIVE 15
V DRIVE 14
V DRIVE 13
W DRIVE 12
W DRIVE 11
GND (3.3V) 10
3.3V 9
TILT HOLE H1 8
TILT HOLE H2 7
TILT HOLE H3 6
GND (3.3V) 5
5V (MR) 4
TILT MR FG1 3
GND (MR) 2
TILT MR FG2 1



SNC-RZ30N/RZ30P (E)

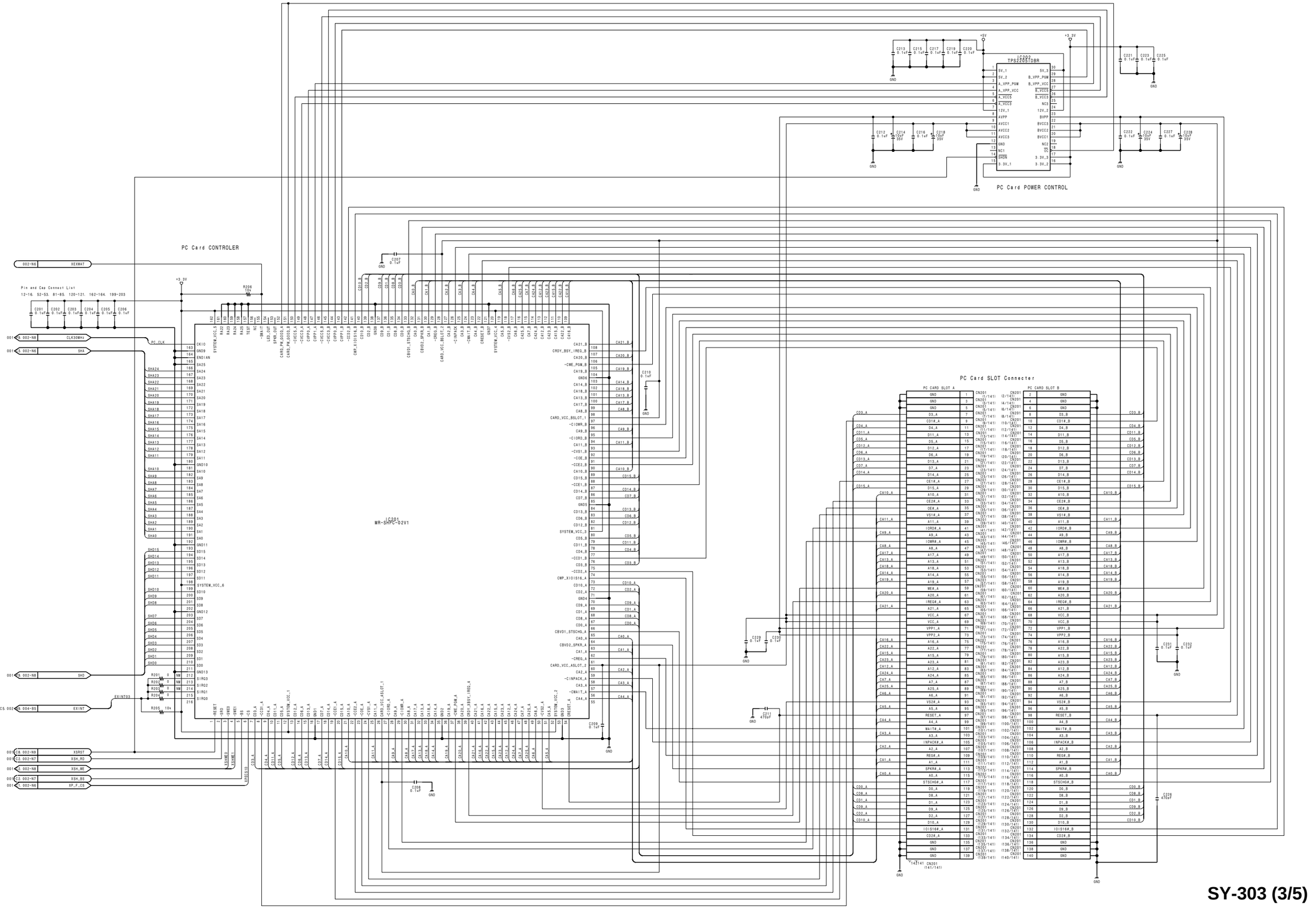
SY-303 (1/5)

SY-303 (2/5)

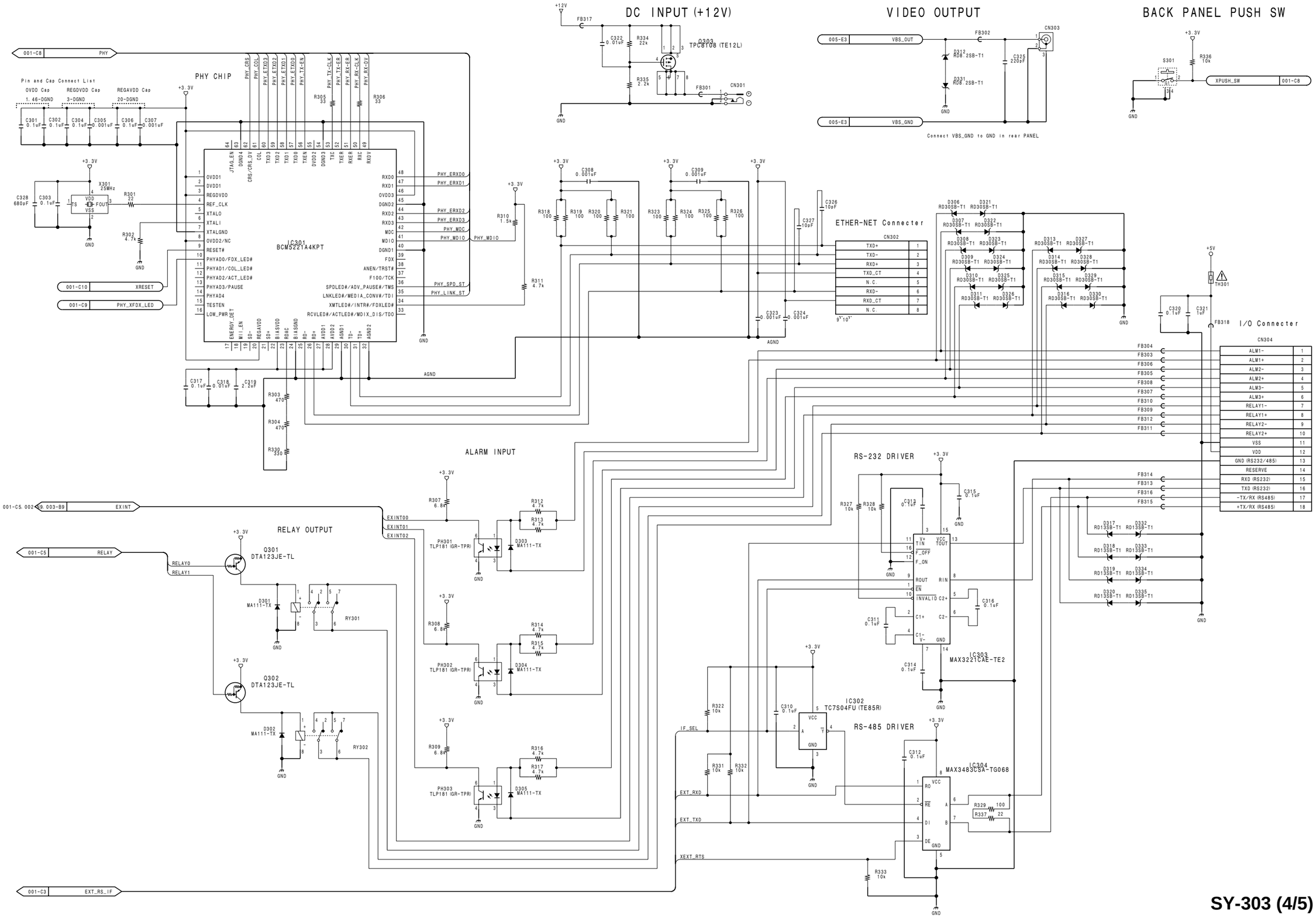


8-8

SY-303 (2/5)


PC Card POWER CONTROL
IC202
TPS2205TDBR
PC Card CONTROLER
IC201
MR-SHPC-02V1
PC Card SLOT Connecter
PC CARD SLOT A
PC CARD SLOT B
Pin and Cap Connect List
12-16. 52-53. 81-85. 120-121. 162-164. 199-203
XEXWAT
CLK30MHz
SHA
XSRST
XSH_RD
XSH_WE
XSH_BS
XP_F_CS
EXINT
EXINT03
PC_CLK
SHD
SIRQ3
SIRQ2
SIRQ1
SIRQ0
R206 10k
R205 10k
C209 0.1uF
C210 0.1uF
C211 4700pF
C226 4700pF
C229 0.1uF
C230 0.1uF
C231 0.1uF
C232 0.1uF
C207 0.1uF
C208 0.1uF

SY-303 (4/5)

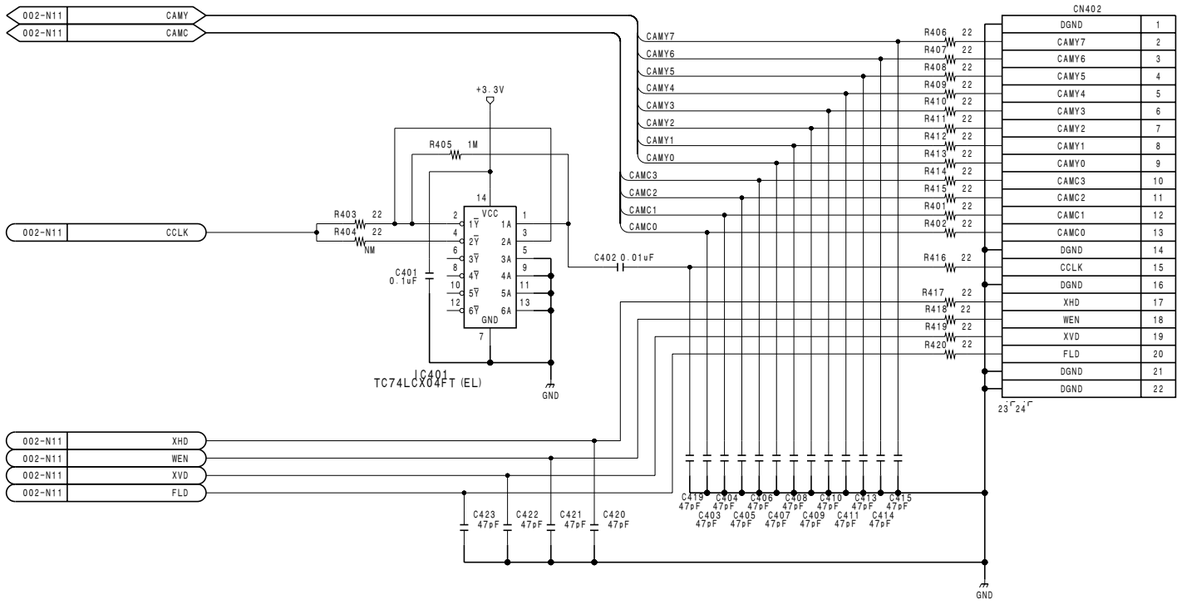


SNC-RZ30N/RZ30P (E)

SY-303 (4/5)

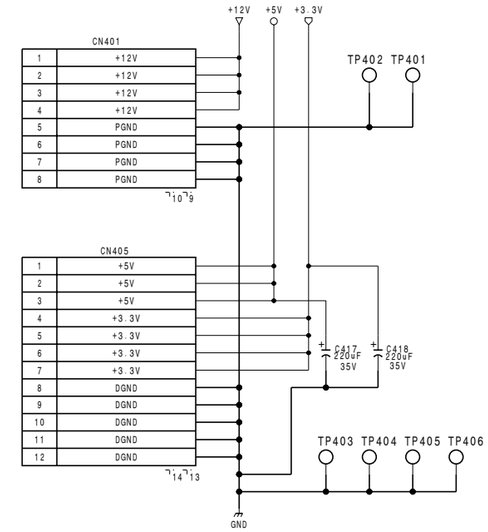
SY-303 (5/5)

Camera Connecter 20P



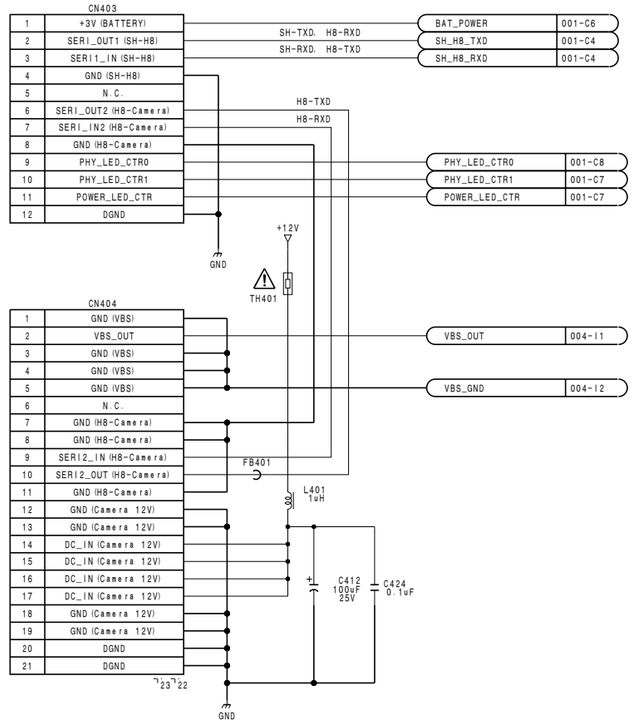
Camera Connecter 22P

Power OUTPUT Connecter



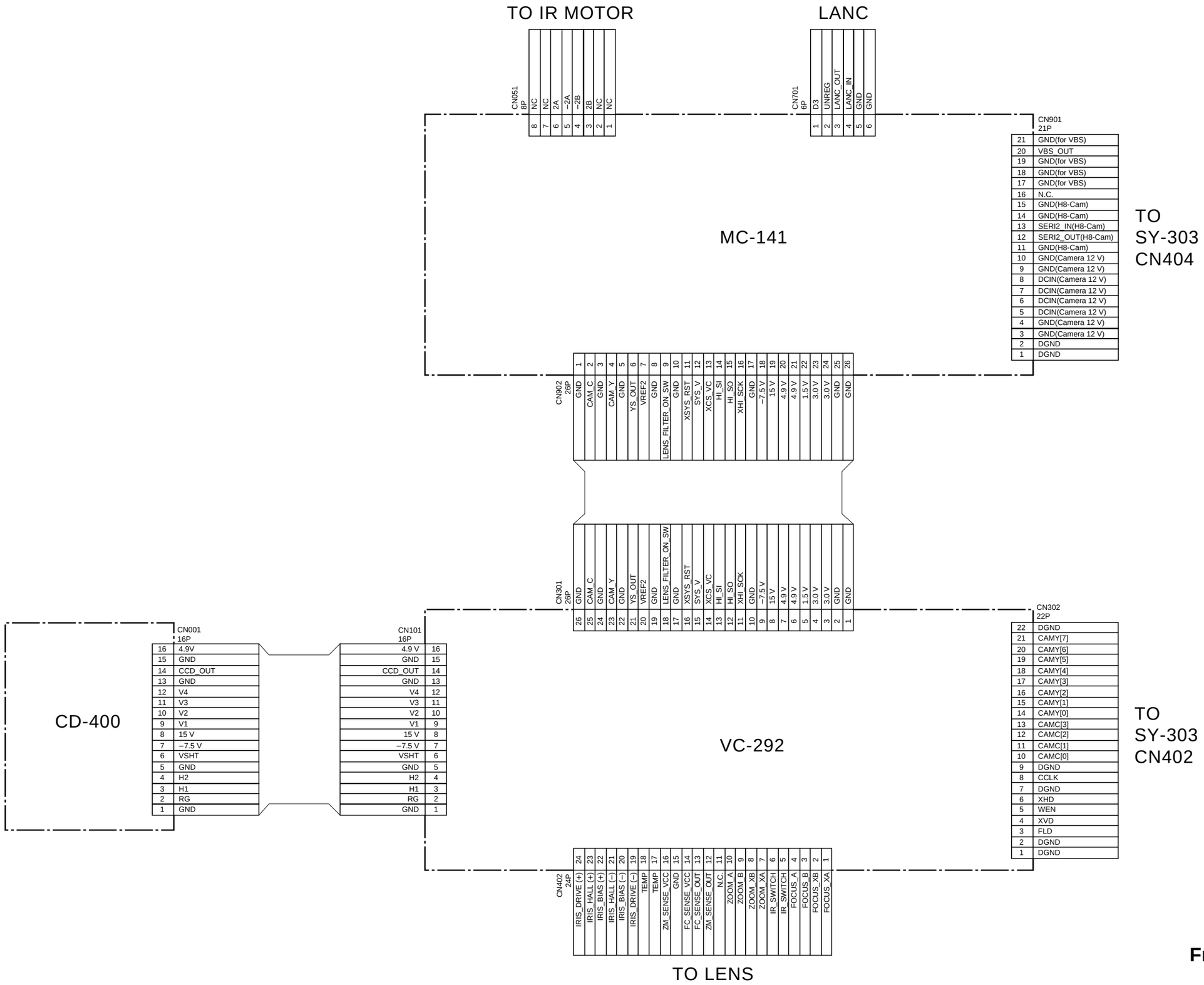
Power INPUT Connecter

SY303 Board <-> MDR19 Board Connecter



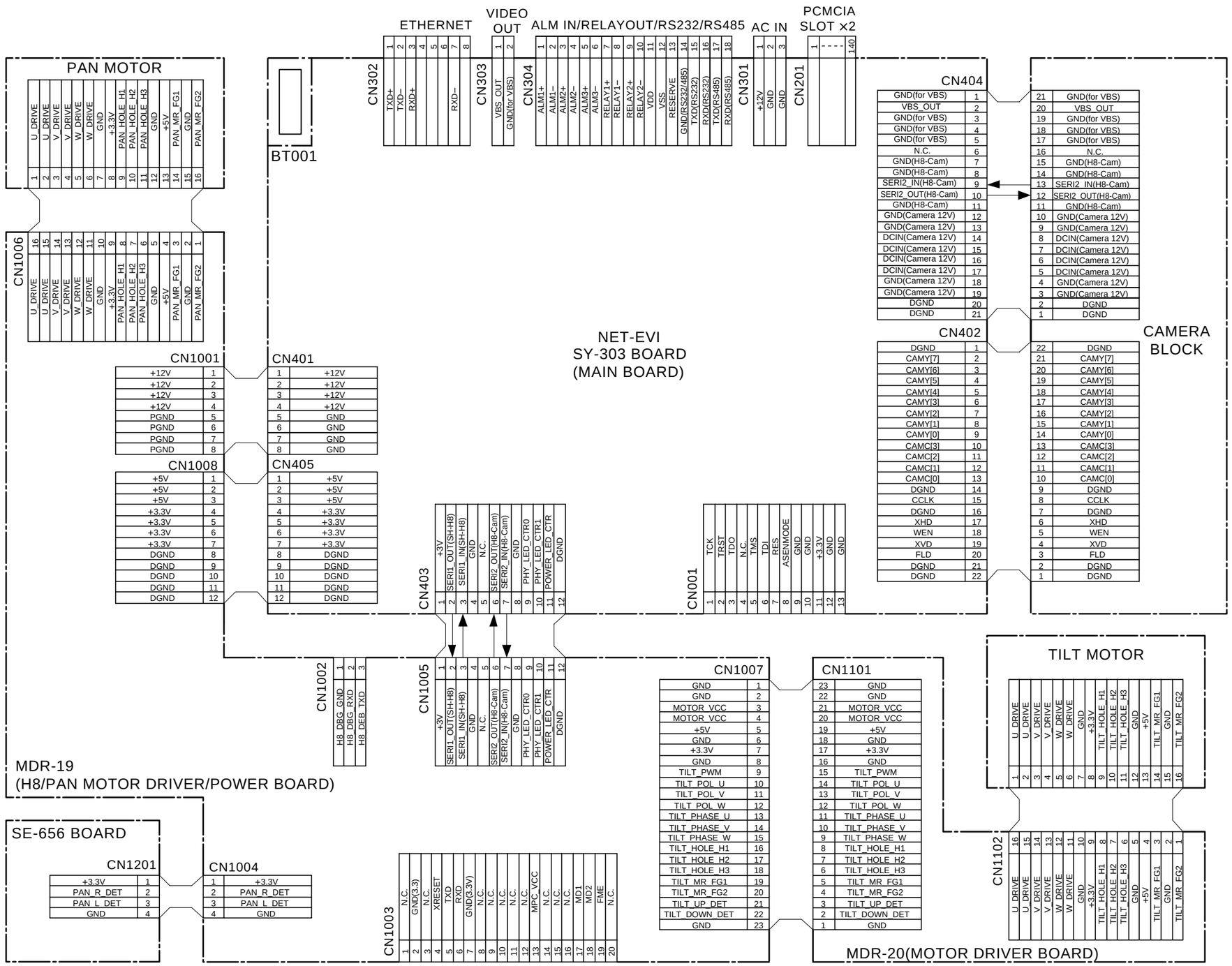
SY-303 (5/5)

Frame Wiring (Camera Block)

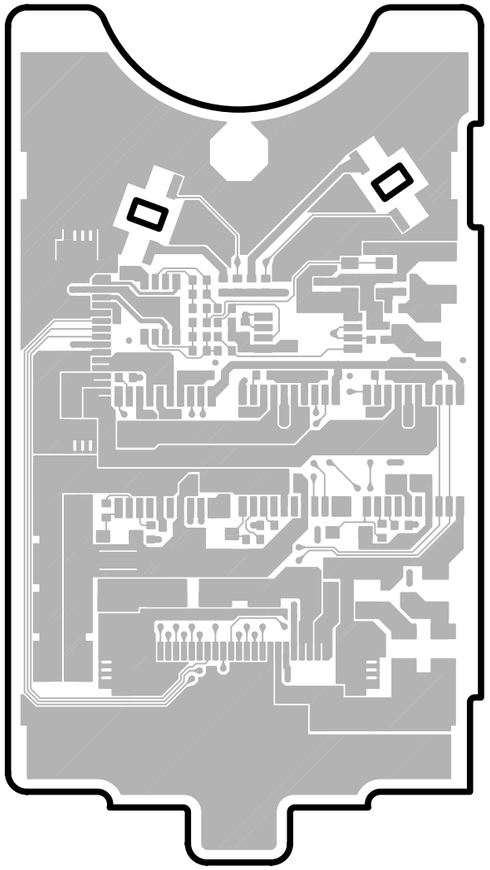


Frame Wiring (Camera Block)

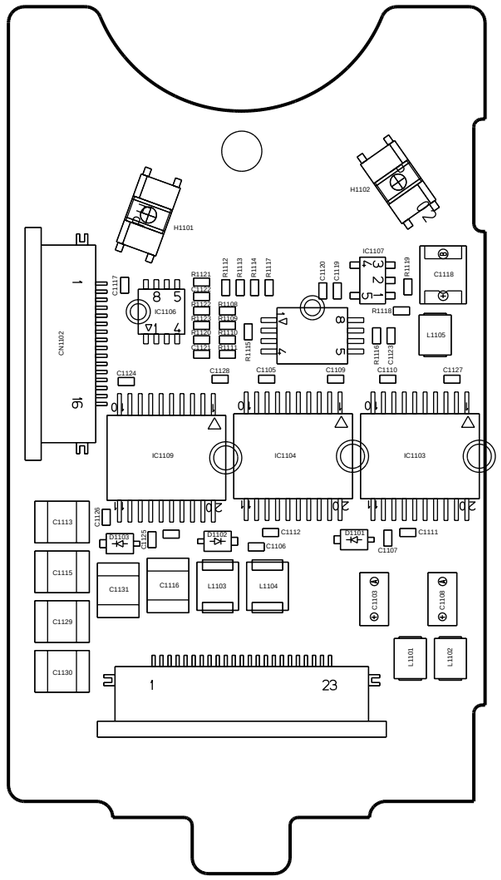
Frame Wiring (Main Block)



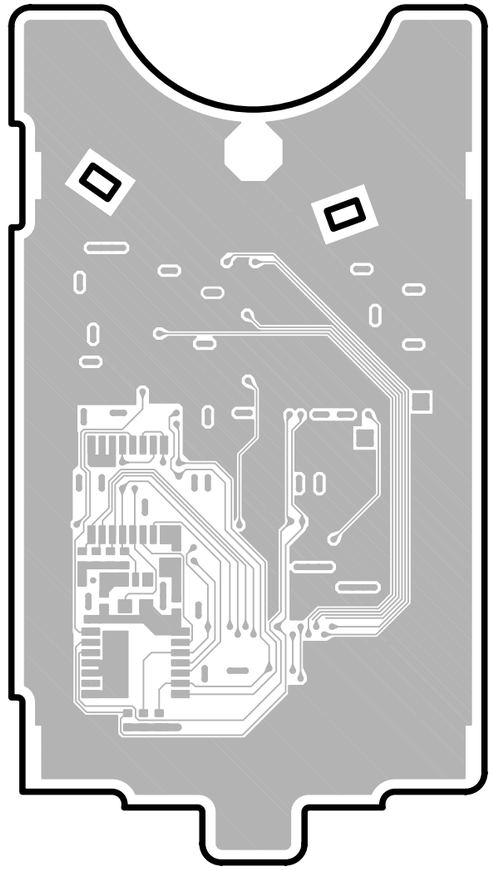
Section 9
Board Layouts



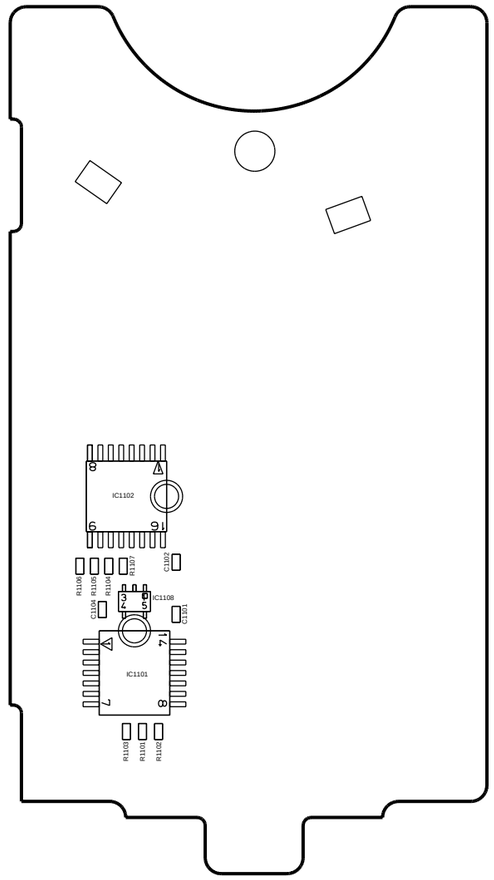
MDR-20 -A SIDE-
SUFFIX: -11



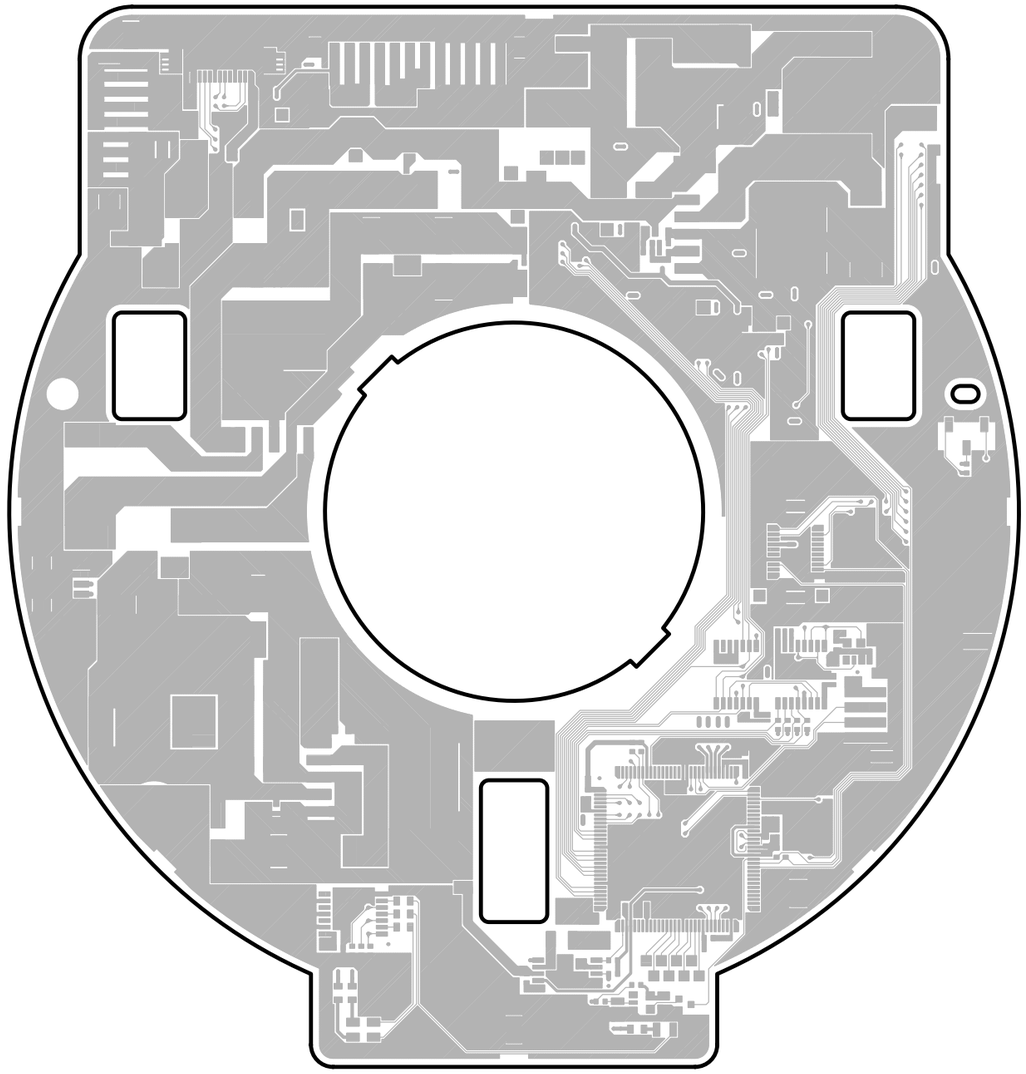
MDR-20 -A SIDE-
SUFFIX: -11



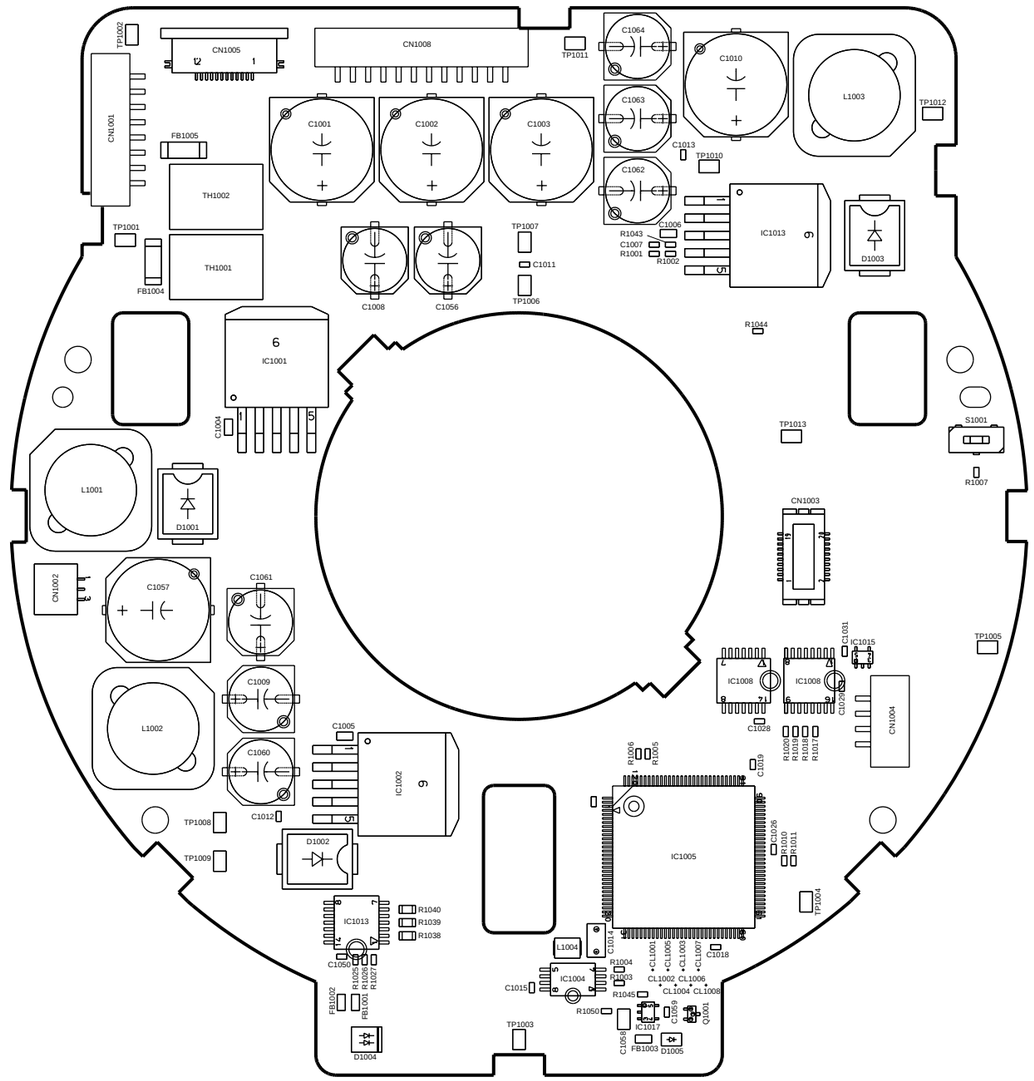
MDR-20 -B SIDE-
SUFFIX: -11



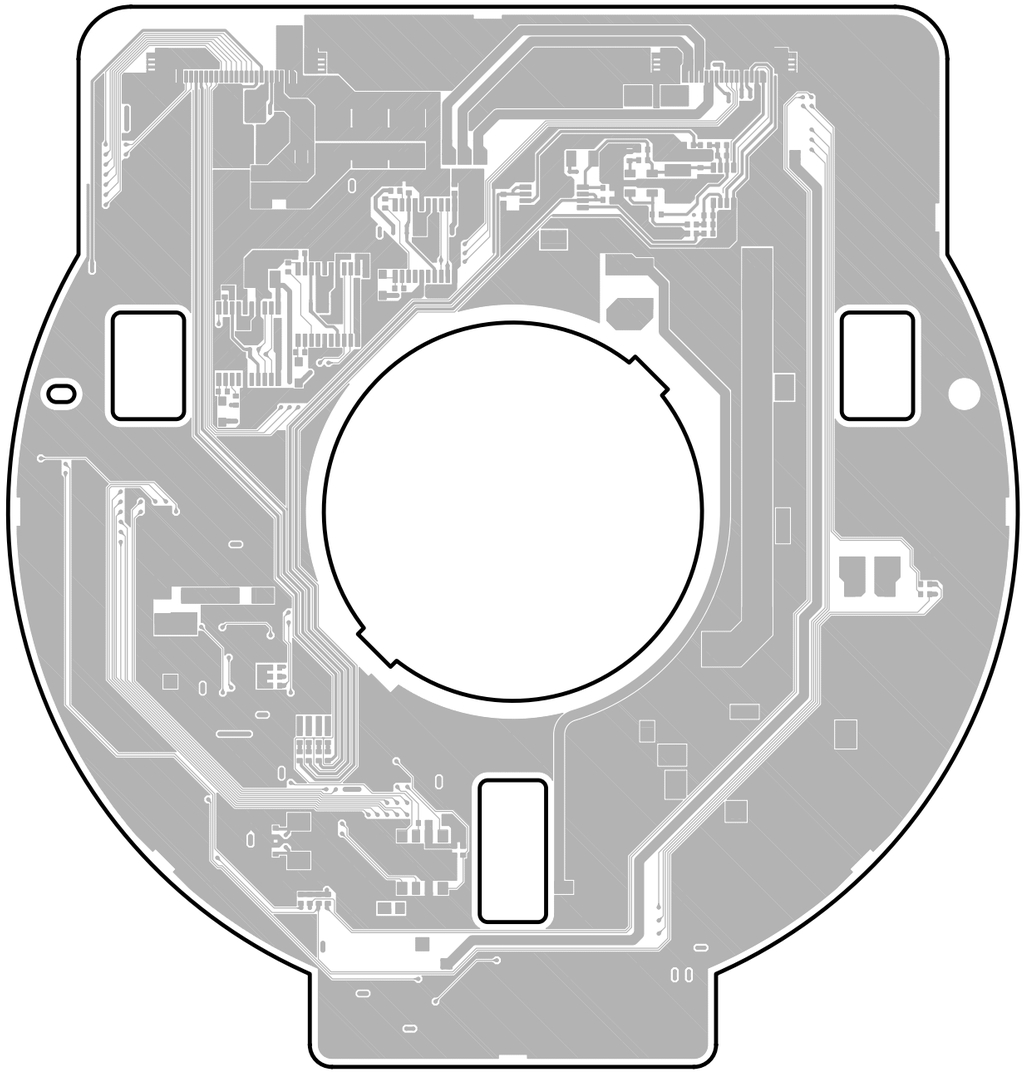
MDR-20 -B SIDE-
SUFFIX: -11



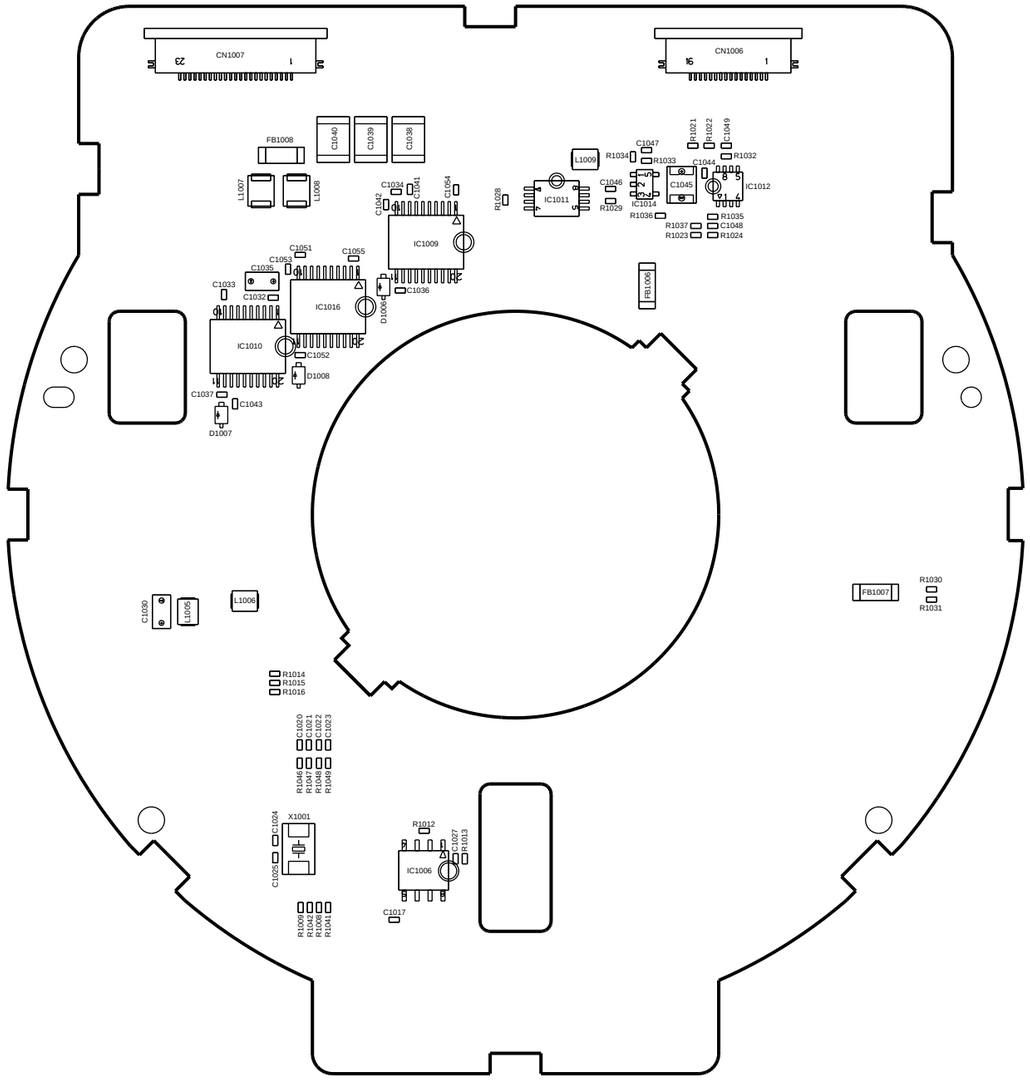
MDR-19 -A SIDE-
SUFFIX: -11



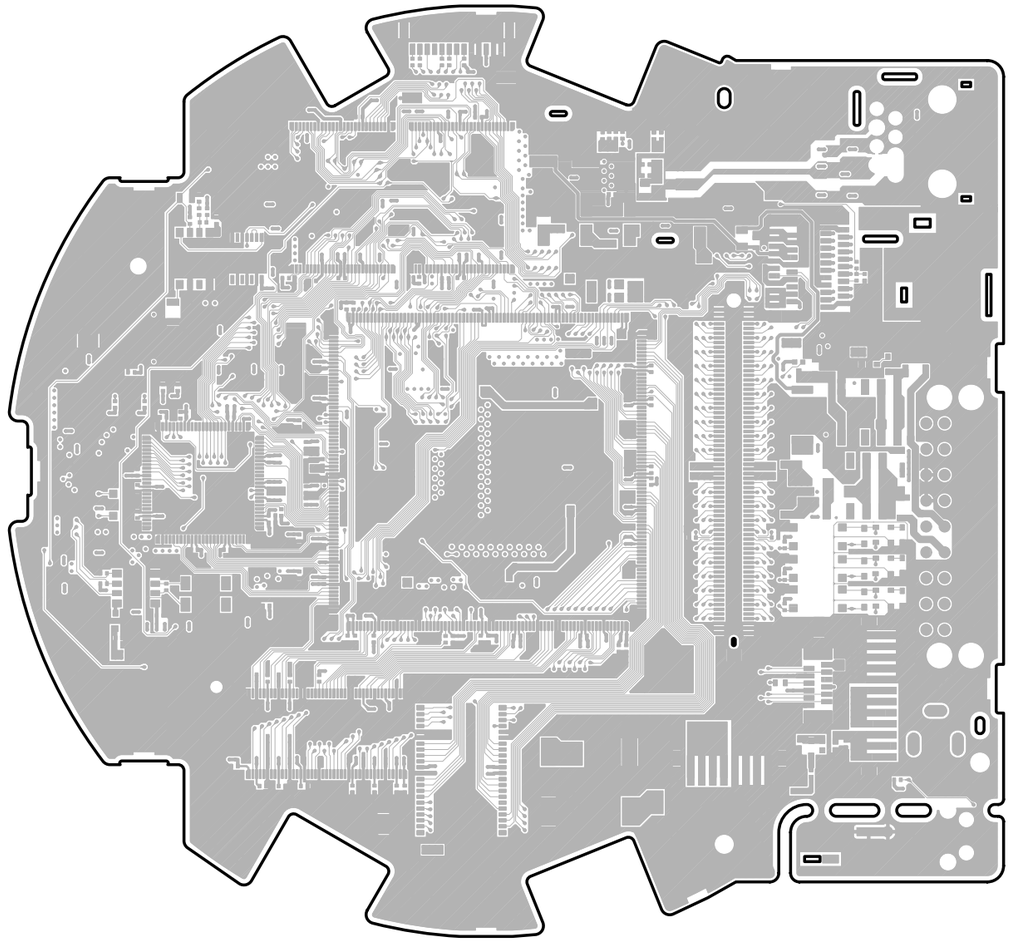
MDR-19 -A SIDE-
SUFFIX: -11



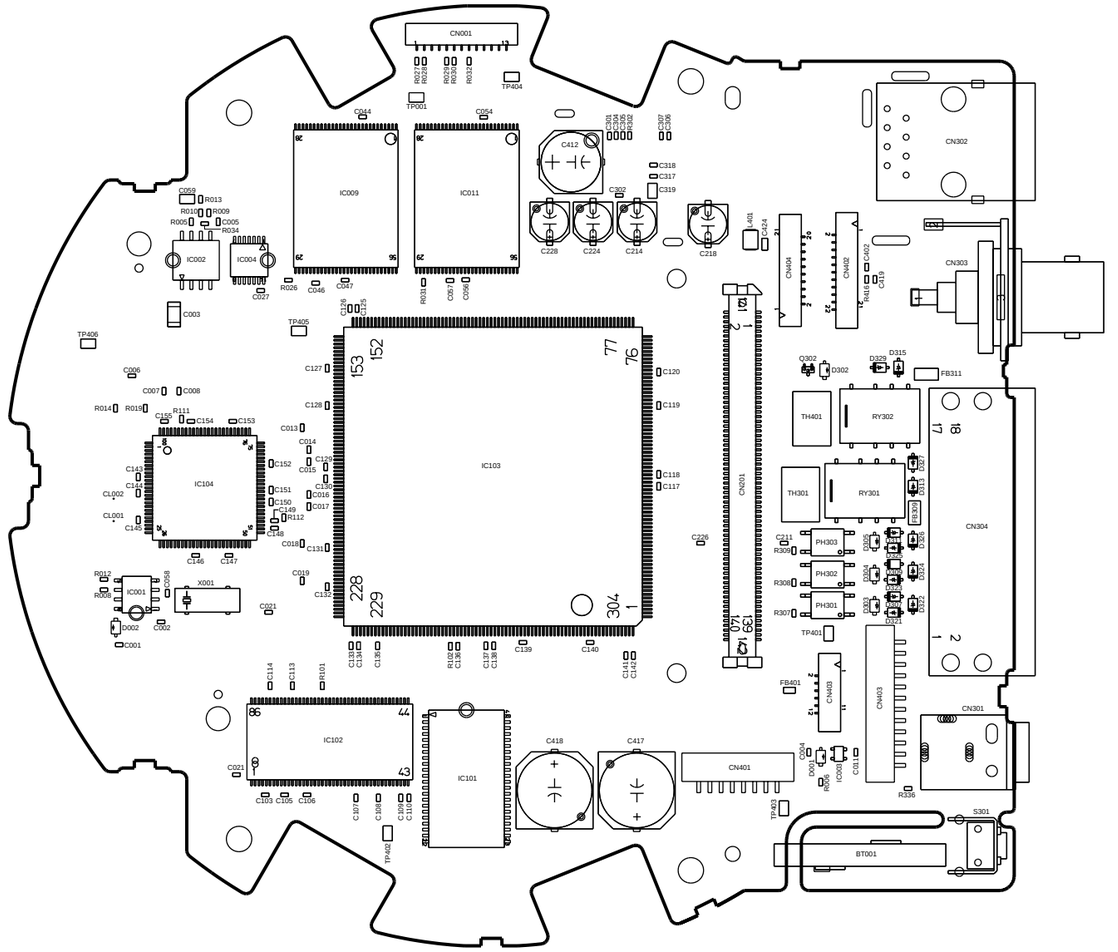
MDR-19 -B SIDE-
SUFFIX: -11



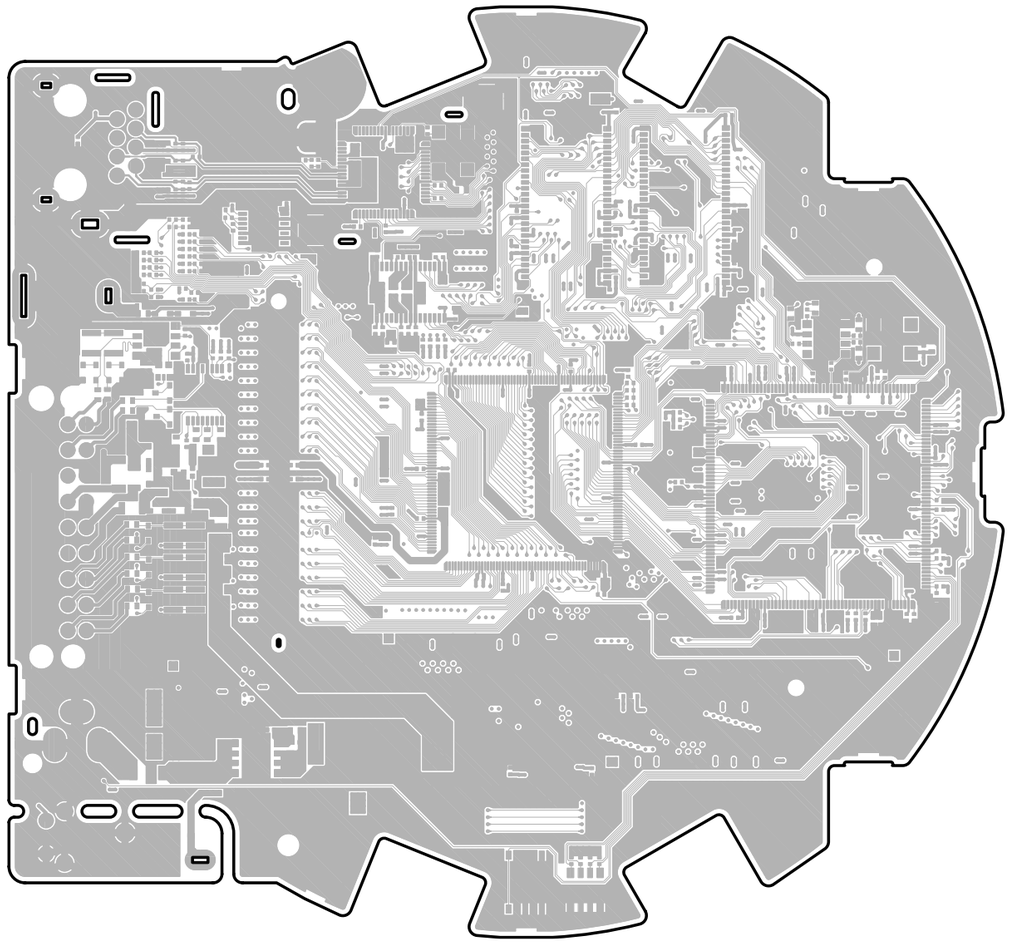
MDR-19 -B SIDE-
SUFFIX: -11



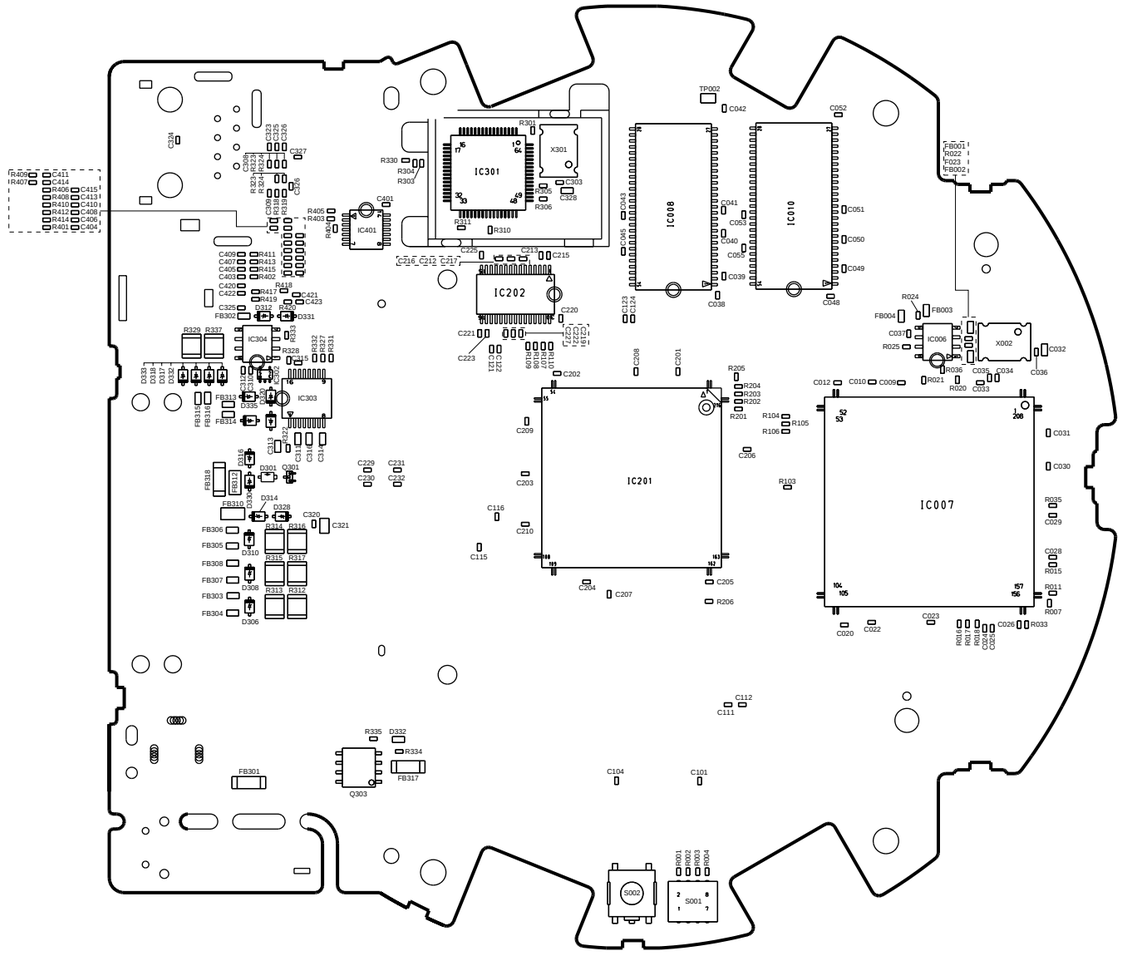
SY-303 -A SIDE-
SUFFIX: -11



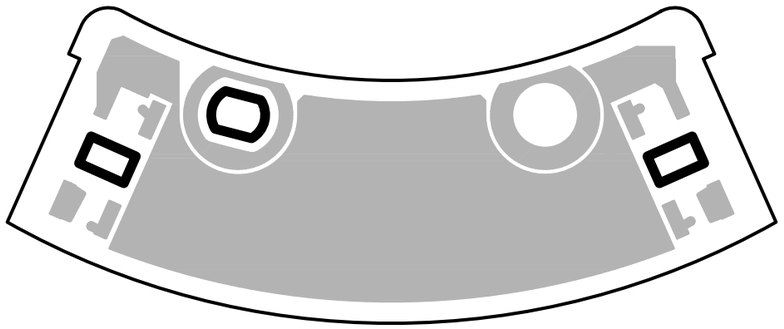
SY-303 -A SIDE-
SUFFIX: -11



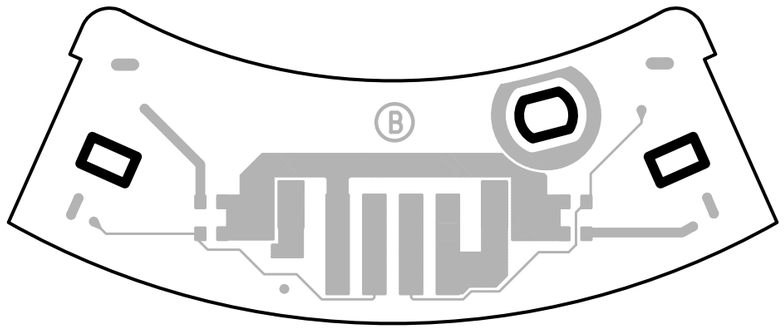
SY-303 -B SIDE-
SUFFIX: -11



SY-303 -B SIDE-
SUFFIX: -11



SE-656 -A SIDE-
SUFFIX: -11



SE-656 -B SIDE-
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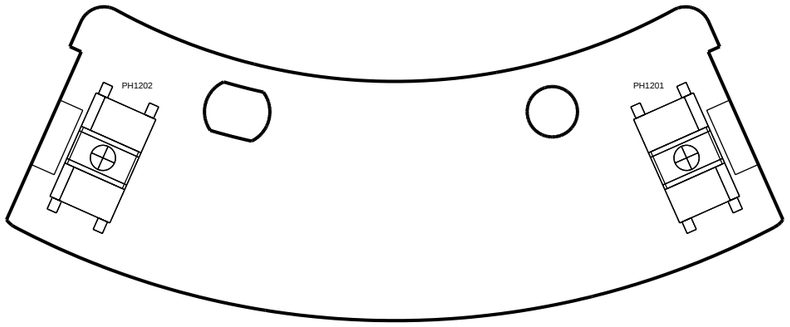
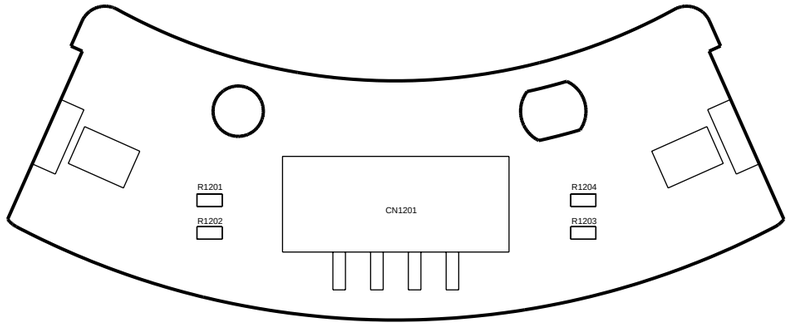


SE-656 -A SIDE-
SUFFIX: -11

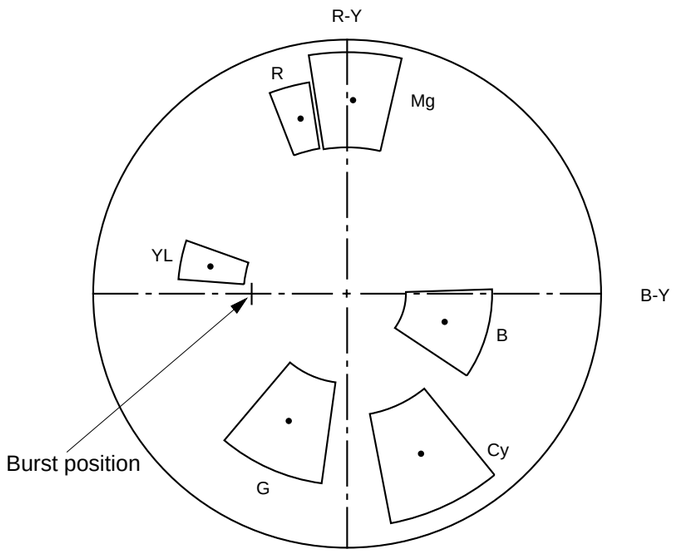


SE-656 -B SIDE-
SUFFIX: -11

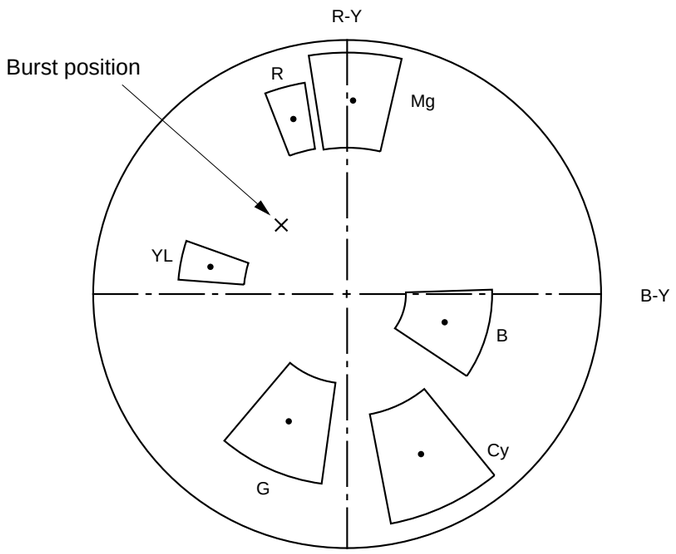
VECTORSCOPE SCALE

Copy on a transparent sheet.

<For NTSC model>



<For PAL model>



SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20 V AC range are suitable. (See Fig. A)

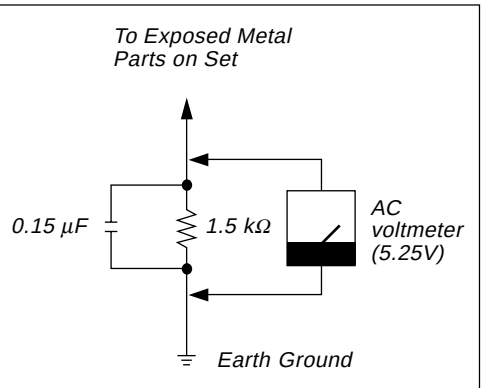


Fig A. Using an AC voltmeter to check AC leakage.

SNC-RZ30N (UC)
SNC-RZ30P (CE) E
9-955-377-01

Sony Corporation
B&P Company

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